

**IN THE UNITED STATES COURT OF APPEALS
FOR THE THIRD CIRCUIT**

Docket Nos. 18-2012, 18-2225, 18-2249, 18-2253, 18-2281,
18-2332, 18-2416, 18-2417, 18-2418, 18-2419, 18-2422,
18-2650, 18-2651, 18-2661, 18-2724, and 19-1385

In re National Football League Players' Concussion Injury Litigation

**JOINT APPENDIX
Volume VII of XIII, Pages JA3971-JA4550**

On appeal from Orders of the United States District Court for
the Eastern District of Pennsylvania (Hon. Anita B. Brody),
in No. 2:14-md-02323-AB and MDL No. 2323

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October 13, 2014

Mr. Michael E. Kunz, Clerk of Court
NFL Concussion Settlement
U.S. District Court for the Eastern District of Pennsylvania
James A. Byrne United States Courthouse
601 Market Street
Philadelphia, PA 19106-1797

VIA OVERNIGHT DELIVERY

Re: Armstrong Objectors' Amended Objection to the June 25, 2014 Class Action Settlement Agreement in In re *National Football League Players' Concussion Injury Litigation*; MDL No. 2323

Dear Mr. Kunz:

Pursuant to the Court's directive, enclosed, for filing, are the following submissions:

1. Amended Objection to the June 25, 2014 Class Action Settlement Agreement by Ramon Armstrong, Nathaniel Newton, Jr., Larry Brown, Kenneth Davis, Michael McGruder, Clifton L. Odom, George Teague, Drew Coleman, Dennis DeVaughn, Alvin Harper, Ernest Jones, Michael Kiselak, Jeremy Loyd, Gary Wayne Lewis, Lorenzo Lynch, Hurles Scales, Gregory Evans, David Mims, Evan Ogelsby, Phillip E. Epps, Charles L. Haley, Sr., Kevin Rey Smith, Darryl Gerard Lewis, Curtis Bernard Wilson, Kelvin Mack Edwards, Sr., Dwayne Levels, Solomon Page, and Tim McKyer (collectively, the “Armstrong Objectors”).
2. Declaration of Richard L. Coffman.
3. Declaration of Mitchell A. Toups.
4. Declaration of Jason C. Webster.

Should you have any questions, please call or email me.

Very truly yours,

Richard L. Coffman

RLC:ap

JA3971

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN OF PENNSYLVANIA**

**IN RE: NATIONAL FOOTBALL
LEAGUE PLAYERS' CONCUSSION
INJURY LITIGATION**

No. 12-md-2323 (AB)

MDL No. 2323

**THIS DOCUMENT RELATES TO:
ALL ACTIONS**

AMENDED OBJECTION TO THE JUNE 25, 2014 CLASS ACTION SETTLEMENT AGREEMENT BY RAMON ARMSTRONG, NATHANIEL NEWTON, JR., LARRY BROWN, KENNETH DAVIS, MICHAEL MCGRUDER, CLIFTON L. ODOM, GEORGE TEAGUE, DREW COLEMAN, DENNIS DEVAUGHN, ALVIN HARPER, ERNEST JONES, MICHAEL KISELAK, JEREMY LOYD, GARY WAYNE LEWIS, LORENZO LYNCH, HURLES SCALES, GREGORY EVANS, DAVID MIMS, EVAN OGLESBY, PHILLIP E. EPPS, CHARLES L. HALEY, SR., KEVIN REY SMITH, DARRYL GERARD LEWIS, CURTIS BERNARD WILSON, KELVIN MACK EDWARDS, SR., DWAYNE LEVELS, SOLOMON PAGE, AND TIM MCKYER

TO THE HONORABLE UNITED STATES DISTRICT COURT:

Settlement Class Members Ramon Armstrong, Nathaniel Newton, Jr., Larry Brown, Kenneth Davis, Michael McGruder, Clifton L. Odom, George Teague, Drew Coleman, Dennis DeVaughn, Alvin Harper, Ernest Jones, Michael Kiselak, Jeremy Loyd, Gary Wayne Lewis, Lorenzo Lynch, Hurles Scales, Gregory Evans, David Mims, Evan Oglesby, Phillip E. Epps, Charles L. Haley, Sr., Kevin Rey Smith, Darryl Gerard Lewis, Curtis Bernard Wilson, Kelvin Mack Edwards, Sr., Dwayne Levels, Solomon Page, and Tim McKyer (collectively, the “Armstrong Objectors”) file this Amended Objection to the revised settlement set forth in the June 25, 2014 Class Action Settlement Agreement (Doc. #6087) (the “RSA”), and respectfully show the following:

THE ARMSTRONG OBJECTORS

The Armstrong Objectors are twenty-eight (28) former National Football League (“NFL”) players with distinguished playing careers. The Armstrong Objectors collectively played an average of over six seasons with over twenty different teams. They include offensive and defensive linemen, linebackers, defensive backs, wide receivers, tight ends and a running back. The Armstrong Objectors include Pro Bowl selections, All-Pros, All-Americans, Super Bowl champions, and a Super Bowl MVP. The oldest Armstrong Objector began his NFL career in 1960. The youngest Armstrong Objector retired after the 2011 season. One played on five Super Bowl Championship teams, four played on three Super Bowl Championship teams, one played on two Super Bowl Championship teams, one played on one Super Bowl Championship team, and two others played in five Super Bowls between them.

Ramon Armstrong played one season as a defensive tackle with the Oakland Raiders. Mr. Armstrong began his professional football career after playing for Texas Christian University. Mr. Armstrong retired from the old AFL after the 1960 season.

Nathaniel Newton, Jr. played fourteen seasons as an offensive lineman with the Dallas Cowboys and Carolina Panthers. Prior to his NFL career, he played two years for the Tampa Bay Bandits in the United States Football League. Mr. Newton was a six-time Pro Bowl selection, twice named All-Pro, and played on three Super Bowl Championship teams with the Dallas Cowboys (XXVII, XXVIII, and XXX). He also was named to the USFL All-Time Team. Mr. Newton began his NFL professional football career in 1986 after playing for Florida A&M University — where he was first team All-MEAC as a senior. Mr. Newton retired from the NFL after the 1999 season. He is a radio and television broadcaster in Dallas, Texas.

Larry Brown played eight seasons as a defensive back with the Dallas Cowboys and Oakland Raiders. He played on three Super Bowl Championship teams with the Dallas Cowboys (XXVII, XXVIII, and XXX), and was named MVP of Super Bowl XXX. He was also named to the NFL all-rookie team. Mr. Brown began his professional football career in 1991 after playing for both Los Angeles Southwest College and Texas Christian University. After his senior season at TCU, he was invited to play in the Blue–Gray Football Classic where he was named MVP. Mr. Brown retired from the NFL after the 1998 season. He is a cohost of the Dallas Cowboys Radio Network Pregame and Postgame Shows on the Dallas Cowboys Radio Network.

Kenneth Davis played nine seasons as a running back with the Green Bay Packers and Buffalo Bills. He played in four consecutive Super Bowls (XXV, XXVI, XXVII and XXVIII) with the Buffalo Bills. Mr. Davis began his professional football career in 1986 after playing for Texas Christian University — where he was first team All-American and had the fifth most votes of all candidates for the Heisman Trophy as a junior. Mr. Davis retired from the NFL after the 1994 season. He is the Athletic Director and former head football coach at Bishop Dunne Catholic School in Dallas, Texas.

Michael McGruder played nine seasons as a defensive back with the Green Bay Packers, Miami Dolphins, San Francisco 49ers, Tampa Bay Buccaneers, and New England Patriots — with whom he played in Super Bowl XXXI. Prior to his NFL career, he played three seasons in the Canadian Football League with the Saskatchewan Roughriders. Mr. McGruder received the NFL Extra Effort Award and was a finalist for the NFL Bart Starr Award in 1997. He began his NFL professional football career in 1989 after starting four years at Kent State University where he was captain of the football team his senior year, and a 2-year captain of the track team. Mr.

McGruder retired from the NFL after the 1997 season. In 2009, Mr. McGruder founded Platinum Charities, a charitable organization dedicated to motivating at-risk youth and empowering disadvantaged families to reach higher levels of achievement. Platinum Charities champions programs that create life changing opportunities to lift children and families out of poverty through scholarship initiatives, youth based programs, and home ownership opportunities in Ohio, Georgia, and Texas.

Clifton L. Odom played thirteen seasons as a linebacker with the Cleveland Browns, Baltimore and Indianapolis Colts, and Miami Dolphins. Mr. Odom began his professional football career in 1980 after playing for the University of Texas Christian-Arlington. Mr. Odom retired from the NFL after the 1993 season.

George Teague, a first round pick in the 1993 NFL Draft, played nine seasons as a defensive back with the Green Bay Packers, Dallas Cowboys, and Miami Dolphins. Mr. Teague began his professional football career after playing for the University of Alabama. In 2002, he started the George Teague & Friends Foundation, a charitable organization focusing on youth development programs that involves many former University of Alabama football players. Mr. Teague retired from the NFL after the 2001 season. He is the Director of Athletics and Physical Education and Head Football Coach for the Shelton School in Dallas, Texas.

Drew Coleman began his professional football career in 2006 after playing cornerback for the Texas Christian University Mountain West Conference Championship team. He played four seasons with the New York Jets and one season with the Jacksonville Jaguars. Mr. Coleman retired from the NFL after the 2011 season.

Dennis DeV Vaughn was captain of the Bishop College football team and named MVP of the 1981 Sheridan Black College All-Star game. He played defensive back for the Philadelphia

Eagles for two years (1982-1983). After retiring from professional football, Mr. DeVaughn helped found, and became President of, Athletes for Change, an organization that provides treatment services to youth with emotional or behavioral disorders.

Alvin Harper played college football at the University of Tennessee. He was a first round draft pick of the Dallas Cowboys in 1991 after earning All-Southeastern Conference First Team honors in 1990 and being named MVP of the 1991 Hula Bowl. As a wide receiver, Mr. Harper helped lead the Dallas Cowboys to back to back Super Bowl Championships (XXVII and XXVIII). After playing for the Cowboys for four seasons, Mr. Harper played one year each for the Tampa Bay Buccaneers, Washington Redskins and New Orleans Saints. He returned to Dallas for his final NFL season in 1999.

Ernest Jones was drafted by the Los Angeles Rams in 1994 and played in the NFL for six seasons. Mr. Jones also was a defensive lineman for the New Orleans Saints, Carolina Panthers, and Denver Broncos on the Super Bowl XXXII Championship team. Since retiring from the NFL in 2000, Mr. Jones has worked as a personal trainer for young athletes in Chandler, Arizona.

Mike Kiselak played one season with the Dallas Cowboys as an offensive lineman in 1998. Prior to his NFL career, he played for the University of Maryland where he was named the Atlantic Coast Conference Offensive Lineman of the Week in October 1989. Mr. Kiselak is a minister and a member of the board of directors for Kids Matters International.

Gary Wayne Lewis played college football at the University of Texas at Arlington. A second round draft pick by the Green Bay Packers in 1981, he played four seasons in the NFL as a tight end. Mr. Lewis retired from the NFL after the 1984 season.

Charles Lewis Haley, Sr. played college football at James Madison University where he was a defensive starter and twice earned All-American honors. Mr. Haley, a linebacker and defensive end, played for five Super Bowl Championship teams. He played for the San Francisco 49ers from 1986-1991 and 1998-1999, winning two Super Bowls (XXIII and XXIV). He also played for the Dallas Cowboys from 1992-1996, where he won three Super Bowls (XXVII, XXVIII, and XXX). Mr. Haley was named All-Pro five times. He retired after the 1999 season. Mr. Haley was selected to the College Hall of Fame in 2011 and Virginia Sports Hall of Fame in 2006. Mr. Haley, who also is enshrined in the Dallas Cowboys Ring of Honor, is a two-time finalist for the NFL Hall of Fame.

Kevin Rey Smith played college football at Texas A&M University where he was a member of two Southwest Conference Championship teams. He was an All-Southwest Conference selection for three years, and a 1991 consensus All-American. Mr. Smith, a first round draft pick, played his entire NFL career as a cornerback with the Dallas Cowboys (1992-2000)—including three Super Bowl Championship teams (XXVII, XXVIII, and XXX). Mr. Smith retired after the 2000 season. He was inducted into the Texas A&M Athletic Hall of Fame in 1997.

Darryl Gerard Lewis played college football at the University of Texas at Arlington. He played one season as tight end for the Cleveland Browns in 1984.

Curtis Bernard Wilson played college football at the University of Houston and Texas A&I University at Kingsville. Mr. Wilson, an undrafted free agent, played defensive back for the San Diego Chargers.

Kelvin Mack Edwards, Sr. played college football at Liberty University. He was a wide receiver for the New Orleans Saints and Dallas Cowboys from 1986 through 1988.

Dwayne Levels played college football at Oklahoma State University. He was a linebacker for the Cincinnati Bengals in 2002 and 2003.

Solomon Page played college football at West Virginia University. Mr. Page, an offensive lineman, was drafted in the second round by the Dallas Cowboys in 1999. During his career with the Dallas Cowboys (1999-2002), he played both right guard and right tackle. Mr. Page played with the San Diego Chargers in 2003, after which he retired from the NFL.

Tim McKyer played college football at the University of Texas at Arlington. A cornerback, he was a third round draft pick of the San Francisco 49ers in 1986. Mr. McKyer played for the 49ers (1986-1989), Miami Dolphins (1990), Atlanta Falcons (1991-1992), Detroit Lions (1993), Pittsburgh Steelers (1994), Carolina Panthers (1995), Atlanta Falcons (1996), and Denver Broncos (1997). He was a member of three Super Bowl Championship teams in 1988 and 1989 (San Francisco), and 1997 (Denver) (XXII, XXIII, and XXXII, respectively). Mr. McKyer, a two-time All Pro, retired from the NFL after the 1997 season.

Since retiring from the NFL, each of the Armstrong Objectors has experienced one or more of a wide range of symptoms linked to repetitive mild traumatic brain injury (“TBI”), including a sensitivity to noise, visuospatial issues, visual impairment, chronic pain, executive function deficit, episodic depression, mood and personality changes, chronic headaches, dysnomia, a decreased ability to multi-task, peripheral nerve dysfunction (numbness, burning, and/or tingling), cervical spinal disorders, sleep dysfunction, attention and concentration deficits, short- and long-term memory deficits, and somatic disorders. Some of the Armstrong Objectors also have experienced a decreased ability to interpret, regulate, express, or control complex emotions — all of which are associated with chronic traumatic encephalopathy (“CTE”) and may broaden or intensify.

Although the Armstrong Objectors' injury claims would be released by the RSA, none would qualify for any relief under the RSA beyond participation in the proposed Baseline Assessment Program ("BAP"). Even then, the BAP — which measures cognitive deficits such as memory impairment and loss of attention — does not screen for many of their neurobehavioral conditions or neuropsychiatric presentations.

ARMSTRONG OBJECTORS' OBJECTIONS TO THE RSA

The Armstrong Objectors object to the RSA because of the following deficiencies, all of which are curable by rejecting it in its current form and amending it.

1. Numerous physical and behavioral consequences of traumatic brain injury are excluded from the list of qualifying diagnoses for treatment and compensation under the RSA.¹ The Armstrong Objectors object to the RSA because numerous mild TBI physical and behavioral consequences are excluded from the list of qualifying diagnoses for treatment and compensation.

A mild TBI, also known as a concussion, is a complex pathophysiological process induced by biomechanical forces to the head or to another part of the body that transmit to the head. The injury produces an alteration of brain function that results in a wide range of neurological, physical, cognitive, and neuropsychological impairments. These impairments can appear on an intermittent or persistent basis immediately or as many as ten or more years after injury.

¹ This portion of the Armstrong Objectors' Amended Objection is taken from Paragraphs 7-11 of the Declaration of Brent E. Masel and Gregory J. O'Shanick (Doc. # 6180-2) (Exhibit A), which is incorporated herein by reference. Doctors Masel and O'Shanick are the National Medical Director and National Medical Director Emeritus, respectively, of the Brain Injury Association of America ("BIAA"). They filed their Declaration in support of BIAA's motion for leave to file an *amicus curiae* brief (Doc. #6180).

The neurologic consequences of mild TBI include motor, sensory, and autonomic dysfunction as well as vestibular (balance) disturbances, visual perceptual (depth perception, visual figure ground) and oculomotor deterioration (impaired eye tracking, eye-hand coordination), anosmia (loss of sense of smell), ageusia (loss of sense of taste), and posttraumatic headache. A mild TBI can bring about movement disorders, such as Parkinsonism and epilepsy. The risk of developing epilepsy as long as ten years after a TBI is 1.5 times that of non-injured persons. Sleep abnormalities (including central sleep apnea) are common in individuals with mild TBI and are associated with an increased risk of stroke. A mild TBI also increases the risk of pituitary hormonal dysfunction. Symptoms from these deficits include atherosclerosis (hardening of the arteries), fatigue, decreased muscle mass and weakness, mood abnormalities, and cognitive changes. A recent study of 68 retired NFL players who were screened for pituitary dysfunction found hormonal abnormalities in approximately 24% of those studied.

The cognitive challenges associated with a mild TBI vary and change over time. Early in recovery, arousal, attention, and concentration difficulties are prominent, as are memory-encoding problems. Later, difficulties with divided attention, memory retrieval and executive functioning, such as reasoning, planning, sequencing, decision-making and judgment, may emerge. Cognitive recovery evolves at a different pace for each person, with many interdependent factors affecting recovery. Some individuals with mild TBI recover well and return to previous levels of functioning; others do not. Even after returning to routine activities, individuals with mild TBI may experience reduced cognitive efficiency and inconsistency of performance. Such patients may have persistent difficulty recognizing, assessing and managing novel, complex or stressful situations, making it difficult to monitor changes in their health or to reliably comply with medication or medical treatment regimens.

The neurobehavioral consequences of mild TBI are significant. Population-based studies demonstrate a several fold increase in depression, anxiety and impulse control disorders, such as disinhibition, aggression and substance abuse in patients with mild TBI. Even subtle damage to frontal lobe systems can prevent the person with mild TBI from effectively suppressing or consistently managing undesirable behavior, including suicide and suicidal ideation. Thus, loss of frontal lobe inhibitory control in tandem with escalating depression and the tendency for males to seek self-medication solutions for physical or emotional pain form a potentially explosive combination for those with mild TBI.

Many of the physical, neurological and neurobehavioral consequences of TBI are missing from the list of qualifying diagnoses in the RSA. The Armstrong Objectors, therefore, propose the RSA be revised to include the missing TBI physical, neurological and neurobehavioral consequences identified by Doctors Masel and O'Shanick.

2. The RSA's approach to diagnosis of neurocognitive impairment is flawed, excluding certain former NFL players and limit the access of others to medical benefits and compensation.² The Armstrong Objectors object to the RSA because the determination of eligibility for compensation is heavily weighted towards those with severe memory dysfunction and/or evidence of neuromuscular abnormality, which is reflected in the reliance on neuropsychological evaluation in isolation from other indices of functional impairment in day-to-day settings (including information from reliable family members, etc.). In addition, the specification of a basic neurological evaluation excludes the abundance of literature on the multiplicity of other neurological abnormalities potentially present after mild TBI that would be

² This portion of the Armstrong Objectors' Amended Objection is taken from Paragraphs 12-15 of the Masel/O'Shanick Declaration (Doc. # 6180-2) (Exhibit A), which is incorporated herein by reference.

undetected by a “basic” neurological examination. To be maximally effective at identifying those players with residual deficits, it is well accepted by the brain injury professional community that an approach that is more holistic, human-based, and less linguistically reliant is preferred. A more broadly based performance assessment that will not under-estimate pre-morbid intelligence for a personal baseline TBI comparison is needed. Such subtleties reinforce the need for clinical experience to make proper judgment in these assessments.

The RSA provides for a “standard” or “basic” neurological examination, which is not sufficient to diagnose and document all symptoms associated with post-concussion syndrome or mild TBI. An elemental or basic neurological examination commonly assesses for those motor and sensory abnormalities that reflect either spinal cord dysfunction or motor or sensory cortex injury/disease and fails routinely to incorporate those regions of the brain involved in integrating multi-sensory or sensorimotor aspects of brain function. While it is reasonable that with an appropriately developed neuropsychological battery one can omit the mental status/cognitive portion of a neurological examination, it is a major deficit to omit detailed assessments of Cranial Nerves I-XII, motor integration, balance, fine motor control, pathological reflexes involving frontal suppressive systems, and extrapyramidal functions to name but a few. The “standard” neurological evaluation must be a detailed neurological evaluation.

Eligibility for compensation is based on a discrepancy between current function and an estimate of pre-morbid function. The Test of Premorbid Function (“TOPF”) is used to assess pre-morbid function. The TOPF is a word reading test that requires the subject to read a list of words and pronounce them “exactly.” Thus, individuals who speak with a dialect or accent are at a disadvantage, as are individuals with TBI-related speech impairments like dysarthria. (Estimates of the prevalence of dysarthria following traumatic brain injury vary from 10% to

60%). In addition, the TOPF is unreliable in cases where there is a history of reading disability or in cases where injury or illness affects reading ability.

The way in which moderate cognitive decline is defined is also flawed. If a player has impairment in language or visual spatial function, but not in executive function, learning or memory, they would not qualify. This will exclude people with significant impairment in single domains, like aphasia, or severe memory dysfunction. While the prevalence of aphasia post-TBI is unknown, it presents in a variety of ways, sometimes independent of other impairment. In addition, if a player is severely impaired in only a single domain, such as memory, he would be excluded from receiving benefits.

The Armstrong Objectors, therefore, propose the RSA's approach to diagnosis of neurocognitive impairment be revised as suggested by Doctors Masel and O'Shanick.

3. The maximum monetary awards are insufficient. The Armstrong Objectors object to the RSA because individual awards for qualifying players and/or their families remain capped at the following maximum amounts: (i) Dementia (\$1.5 – \$3 million), (ii) Alzheimer's and Parkinson's (\$3.5 million), (iii) ALS (\$5 million), and (iv) Death with CTE (\$4 million). *See* Monetary Award Grid, Exhibit B-3 to the RSA. These amounts are insufficient to compensate the injured players and/or their families — especially once they are present value affected since they will not be paid immediately. The maximum individual awards also are subject to further reductions (*see* below).

Perhaps the best indicator of the anticipated average payout per claimant is Co-Lead Class Counsel's analysis. Counsel believes that even though the RSA is uncapped, it is worth \$675 million to the former players. Co-Lead Class Counsel also estimates that between 3,000 and 5,000 former players will be compensated. Performing simple long division confirms that

the average anticipated monetary award per player is between \$135,000 and \$225,000 — before attorneys’ fees and expenses are deducted. These amounts are not even close to the maximum awards in the Monetary Award Grid. Moreover, it is not even close to the roughly \$10 million in total lifetime costs — including lost productivity and medical and custodial care — that University of Toronto Professor of Neurosurgery Charles Tator estimates for each case of repetitive traumatic brain injury. *See* <http://www.medscape.com/viewarticle/810904#2> (last visited August 20, 2014). *See also* CHARLES H. TATOR, CATASTROPHIC INJURIES IN SPORTS AND RECREATION: CAUSES AND PREVENTION: A CANADIAN STUDY (2d ed. 2008) (calculating the average cost of a non-fatal catastrophic injury at about \$7.5 million (Canadian dollars, normalized to 2006) in lost earnings, lifetime care, and rehabilitation services).

The Armstrong Objectors, therefore, propose the RSA be revised to increase the maximum awards, which could be funded by, *inter alia*, (i) eliminating and utilizing some of the \$112.5 million allocated to Co-Lead Class Counsel as additional attorneys’ fees (*see* below), (ii) eliminating the 5% “set-aside (*see* below), (iii) eliminating and utilizing the \$10 million allocated to the up-front *cy pres* Education Fund (*see* below), and/or (iv) increasing the cost of living percentage to at least 3-4% or peg it to a consumer price index.

4. The downward adjustment of monetary awards on the basis of the number of eligible seasons, a Class Member’s age at the time of the qualifying diagnosis, and/or the presence of stroke or TBI is flawed.³ The Armstrong Objectors object to the RSA because all of the above maximum monetary awards are subject to reductions — often, significant reductions — based on offsets for age and career length. *See* RSA §6.7, Exhibit B-3. Former

³ A portion of this section of the Armstrong Objectors’ Amended Objection is taken from Paragraphs 16-18 of the Masel/O’Shanick Declaration (Doc. # 6180-2) (Exhibit A), which is incorporated herein by reference.

players with fewer than five years of NFL experience will see their awards reduced, some by as much as 95 percent. *Id.* The same holds true for retirees over 45 — the older a player is when diagnosed with brain damage, the less money he will receive. *Id.*

For example, assume a player died before July 7, 2014, the date the RSA was preliminarily approved, and there is a post-mortem CTE finding. If the player was Junior Seau, his family would receive \$4 million according to the Monetary Award Grid (Exhibit B-3 to the RSA). But, under the Monetary Award Grid age-based reductions, the family of Dave Duerson, who also committed suicide, would receive only \$2.3 million. Both are subject to further reductions for attorneys' fees (one-third is the typical arrangement) and expenses. More important is that the family members of a few deceased players will receive some of the largest awards as compared to living players who desperately need medical care, but will receive very small awards, if any.

A single concussion, whether diagnosed or not, is capable of generating debilitating physical, cognitive and behavioral impairments that interfere with the activities of daily living and require treatment throughout the lifespan. Therefore, the nature and extent of the impairment — not the number of seasons played — should be the determining factor in any monetary award. Many retired NFL players who sustained concussions went undiagnosed or were not held-out from play or practice. Thus, the definition of eligible season unfairly excludes players who may have been concussed but did not spend “at least two (2) regular or postseason games on the injured reserve list or inactive list due to a concussion or head injury.” Similarly, while it is reasonable to assume that exposure to mild TBI increases as playing time increases, it is not reasonable to assume that multiple concussions sustained over a short period of time are less debilitating than multiple concussions sustained over a long period of time. In fact, the

opposite is true. A patient who sustains repetitive concussions that go unresolved will exhibit symptoms akin to more severe TBI.

Similarly, it is unfair to offset a monetary award by 75% based on the existence of a stroke or TBI occurring prior to a qualifying diagnosis. Persons who sustain one concussion are predisposed to re-injury, both on and off the field. Severity of injury increases with recurrent injury, as does the likelihood of disability. In a study of over 30,000 individuals in Taiwan, individuals with mild TBI had a 1.7 times increased risk of stroke over those who had not sustained a brain injury.

A Class Member's age at the time of qualifying diagnosis also should not be a factor in calculating a monetary award. The consequences of a brain injury are the same whether experienced in the past (as with the case of a hypothetical 60-year-old retired player who has exhibited symptoms for decades) or the future (as with the case of a hypothetical 30-year-old retired player who has not yet exhibited symptoms).

Attempting to calculate the estimated award a typical retired NFL player facing problems resulting from concussions would receive is difficult. By all counts, there will be many players facing dementia after the age of 60. The Monetary Award Grid provides a payment of \$580,000 to a 60-year-old NFL veteran diagnosed with a moderate form of dementia at age 60 or later. After paying attorneys' fees and expenses, the player would collect something \$375,000. The Armstrong Objectors, therefore, propose the RSA be revised to eliminate the age and career length reductions. There is no correlation between age and career length, on the one hand, and developing dementia, on the other hand. A single severe concussion in the first game of a player's career could cause a player to suffer dementia.

The RSA also reduces monetary awards by 75% for any former player who has suffered a single non-football related traumatic brain injury or stroke (*id.*, §6.7 (b)(iii)) — even though (i) there is no scientific reason to presume that a single non-football brain injury accounts for 75% of a player’s afflictions, and (ii) NFL team doctors spent at least two decades increasing former players’ risk of stroke (and likely, brain injury) by liberally administering the pain-killing, blood-thinning drug Toradol against Food and Drug Administration warning label guidelines.

The Armstrong Objectors also propose the Revised Settlement be revised to eliminate this artificial monetary award reduction. The sole factor in determining monetary awards should be the nature and extent of a Class Member’s impairment. *See also* Masel/O’Shanick Declaration at ¶ 18.

5. Death with CTE benefits are severely limited. The Armstrong Objectors object to the RSA because a “Death with CTE” qualifying diagnosis requires retirees to have died and been diagnosed with CTE prior to July 7, 2014. RSA, §6.3(f) (“A Qualifying Diagnosis of Death with CTE shall be made only for Retired NFL Football Players who died prior to the date of the Preliminary Approval and Class Certification Order, through a post-mortem diagnosis by a board certified neuropathologist of CTE.”). Thus, if an NFL retiree dies after July 7, 2014, and regardless of whether the player commits suicide and it is ultimately determined he suffered from CTE, his family will not qualify for an award. This is absurd. There should not be any deadlines based on when death occurred.

This provision also ignores that CTE — a condition found in contact sport athletes, military personnel exposed to explosive blasts and others subjected to repetitive concussive and sub-concussive head trauma, marked by widespread, irreversible accumulation of destructive tau protein in the brain — is at the heart of this litigation. What’s more, the RSA does not assign

similar cutoff dates to former players diagnosed with ALS, Alzheimer's or Parkinson's — even though a 2013 National Institute for Occupational Safety and Health study of nearly 3,500 NFL retirees who played at least five seasons between 1959 and 1988 recorded just 17 combined cases of these diseases⁴ while, in a 2010 study, 33 of the 34 studied deceased NFL players were diagnosed with CTE.

CTE is the disease that made football brain damage a national issue and a public health concern. Without it, neither this litigation, nor the RSA likely would exist. Yet the RSA forecloses every NFL retiree who has yet to die and be diagnosed with CTE from receiving a “Death by CTE” award as if there will never be another case—which cannot be true.

The Armstrong Objectors further object to the RSA because the qualifying “Death with CTE” diagnosis is too limited. The following symptoms are associated with both brain damage and CTE: sensitivity to noise, visual impairment, chronic pain, chronic headaches, numbness, burning, tingling, incessant ringing in the ears, attention disorders, trouble sleeping, aggression, agitation, impulsivity, suicidal thoughts and difficulty regulating, expressing and controlling complex emotions. None of these symptoms, however, are addressed by the RSA, nor is there any compensation allowed for these conditions.

The CTE restrictions under the RSA are designed to save the NFL a substantial amount of money on the very disease giving rise to the litigation. The Monetary Award Grid reduces the size of individual Death with CTE payouts, while the cutoff date limits the total number. In disallowing future award changes regardless of medical advances — in essence, the potential creation of a “Life with CTE” qualifying diagnosis — the RSA shrinks the eligible player pool

⁴ On the other hand, while medical experts suspect that the other neurodegenerative diseases compensated by the RSA — ALS, Parkinson's, Alzheimer's and dementia — may be triggered and/or accelerated by years of bashing football helmets, these illnesses also occur in people who have not experienced brain trauma. The link to football is less clear.

even further. By exclusively focusing on cognitive impairment, the same BAP program that is supposed to assist CTE sufferers by giving them a general dementia diagnosis excludes retirees suffering from mood, behavioral and other non-cognitive symptoms (such as chronic migraines) — all the while saving the NFL money by ensuring that living ex-players with CTE who qualify for a dementia award are more likely to be older and, therefore, subject to a greater payout reduction according to the Monetary Award Grid.

The Armstrong Objectors, therefore, propose the RSA be revised to delete the date parameters of the “Death with CTE” qualifying diagnosis and expand the list of CTE symptoms that qualify for compensation and lift the restriction on the date of death.

6. The Baseline Assessment Program (“BAP”) participation requirements are too onerous and limited. The Armstrong Objectors object to the RSA because of the length of the program and the tight deadlines under which retired NFL players with cognitive issues must operate. *See* RSA, Art. V. Retired players must register for the BAP within 180 days after notice is posted on a special settlement website. RSA, §4.2(c). Otherwise, they will be deemed ineligible for baseline tests and monetary awards. *Id.* Thereafter, players older than age 43 must take their baseline exams within two years after the BAP is launched, while younger players must take the exams before their 45th birthday or within ten years of the start of the program. RSA, §5.3. After 10 years, no baseline exams will be conducted (RSA, §5.5), and without a baseline exam, it is nearly impossible to qualify for a monetary award under the RSA.

The BAP also screens for cognitive deficits and signs of dementia, but only offers monetary awards for specific neurodegenerative diseases — leaving players who suffer from memory loss, headaches, chronic pain, depression, impulsivity, diminished executive function, speech impairment, attention deficits and other ailments linked to repetitive brain injury, but do

not rise to the level of Parkinson's or ALS, receiving nothing more than counseling and prescription drug coverage, even though their conditions can drastically affect their quality of life and ability to work.

BAP program neuropsychologists also cannot make qualifying diagnoses of Alzheimer's, Parkinson's or ALS. Instead, retirees must visit a settlement-approved doctor and pay for their own medical testing and related travel expenses.

The Armstrong Objectors, therefore, propose the RSA be revised to extend the deadlines for registering for, and taking, the baseline exams by two years, and extend the life of the BAP beyond ten years to possibly twenty years, which could be funded by, *inter alia*, (i) eliminating and utilizing some of the \$112.5 million allocated to Co-Lead Class Counsel as additional attorneys' fees (*see below*), (ii) eliminating the 5% "set-aside (*see below*), (iii) eliminating and utilizing the \$10 million allocated to the up-front *cy pres* Education Fund (*see below*), and/or (iv) additional funds from the NFL.

7. The amount of compensation can only be determined by neuropsychologists pre-selected for the BAP. The Armstrong Objectors object to the RSA because disability can only be determined by neuropsychologists who are pre-selected for the BAP. *See* RSA, Article V. The neuropsychologists who register to be part of the BAP are likely to be far more conservative in "calling" impairment than a neuropsychologist chosen by a player. Requiring neuropsychologists to pre-register for the BAP also will substantially reduce the number of treating doctors involved. Treating physicians rarely seek this kind of work. The physician selection criteria also will dissuade most busy treating doctors from participating. The doctors who typically work for insurance defense law firms are more likely to register. And, for a biased

doctor, the malingering tests specifically authorized under the RSA are a huge weapon to be used against the players.

The RSA also should have forbidden the use of the “Fake Bad Scale,” which can be included in an MMPI assessment, although it has been rejected by most courts as unreliable. The RSA will only be fair if the majority of doctors registering for the BAP believe mild brain injury deficits equal the defined monetary award categories. Yet, the manifestations of early onset of *dementia pugilistica* in football are more behavioral than cognitive.

The Armstrong Objectors, therefore, propose the RSA be revised to allow the players to select and utilize the treating physicians of their choice, without penalty, as long as the treating physicians are Board Certified in Neurology and Board Certified in Brain Injury Medicine, a joint sub-specialty Board certification established by the American Boards of Psychiatry and Neurology and the American Board of Physical Medicine and Rehabilitation in September 2011. *See* Masel/O’Shanick Declaration at ¶ 19. Years of experience, involvement in relevant scientific and professional societies, peer-reviewed journal publications, invited presentations, federal grant awards, and/or active practice on the Joint Commission on Accreditation of Healthcare Organizations or Commission on Accreditation of Rehabilitation Facilities programs also are reliable indicators of expertise in diagnosing and treating the complex and heterogeneous consequences of TBI and should be taken into consideration in selecting their treating physicians. *Id.*

The RSA also fails to recognize the full extent of the treatment team that may be required to support injured players in recovering or maintaining physical, cognitive and behavioral function after MTBI. *Id.* at ¶ 21. The standard of care for patients with TBI dictates that rehabilitation and other medical treatment plans be developed and carried out by a multi-

disciplinary team of licensed, credentialed clinicians working in specialized settings and accredited programs. *Id.* The specialties may include endocrinology, physical medicine, ophthalmology, neuro-optometry, otolaryngology, psychiatry, physical therapy, occupational therapy, speech language therapy, and neurobehavioral therapy. *Id.* Settings may include inpatient rehabilitation hospitals or units, residential rehabilitation facilities, outpatient clinics or at home by licensed providers. *Id.* The Armstrong Objectors further propose the RSA be revised to design, develop, and implement a unique rehabilitation and other medical treatment plan for each Class Member that will be carried out by a multi-disciplinary team of licensed, credentialed clinicians working in specialized settings and accredited programs in order to support former NFL players with TBI of any kind in recovering from such injuries and/or maintaining physical, cognitive and behavioral functions.

The RSA also should be revised to specifically forbid the use of the “Fake Bad Scale” in MMPI assessments.

8. A neuropsychological opinion required. The Armstrong Objectors object to the RSA because determination of the cognitive impairment groups is based entirely on the neuropsychological determination of cognitive impairment. Type I CTE – which impacts younger players – is almost entirely a behavioral problem, not a cognitive problem. Any cognitive changes will be the type not susceptible to measurement in someone under age 60. While some behavioral problems may have cognitive manifestations, they are not likely to manifest themselves in examinations in non-stressful environments, like a neuropsychologist’s office. The Armstrong Objectors, therefore, propose the RSA be revised to allow for compensation for these behavioral problems and their own physicians to diagnose same.

9. The RSA limits pharmacy vendors to mail order providers.⁵ While the establishment of a consistent means for providing routine and stable medications to injured players is appropriate, some medications – particularly human growth hormone (costing \$15-20,000 yearly for life) used to treat pituitary dysfunction in patients with mild TBI – require distribution that controls for temperature, light, vibration and other conditions and cannot be reliably distributed by mail order. Further, during periods of medication adjustment and trials to determine efficacy and dosage amounts, the use of a mail order pharmacy slows down the turnaround time in medication acquisition, preventing the physician from making quick and immediate medication changes, and, typically can only refill for a 90-day period which may be excessively wasteful should a therapeutic trial be unsuccessful after several days or even weeks.

Requiring the use of a mail order pharmacy also will deprive Class Members of the personal, face-to-face counseling available at local “brick and mortar” pharmacies where Class Members may have longstanding relationships with their pharmacists who have personal knowledge of Class Members’ medical histories and current prescriptions that, in turn, could identify and prevent negative drug interactions.

The Armstrong Objectors, therefore, propose the RSA be revised to allow Class Members to utilize the pharmacy provider of their choice.

10. The RSA provides for unlimited appeals. The Armstrong Objectors object to the RSA because the NFL may appeal as many monetary awards as it chooses — for free. In the initial, rejected version of the settlement, the NFL was limited to ten appeals per year. However, under the RSA, and regardless of a retired player’s mental state or financial need, the NFL can

⁵ A portion of this section of the Armstrong Objectors’ Amended Objection is taken from Paragraph 20 of the Masel/O’Shanick Declaration (Doc. # 6180-2) (Exhibit A), which is incorporated herein by reference.

delay payment by simply appealing an unlimited number of claims. RSA, § 9.6(b). What's more, while there is no charge for the NFL to appeal a monetary award, players must pay a \$1000 fee to file an appeal. RSA, § 9.6(a). It also is unfair to place retired players with cognitive issues, such as memory problems, issues with punctuality, difficulty keeping appointments and staying on top of paperwork, in a position of having to deal with the prospect of an unlimited number of appeals.

The RSA also requires an appealing player to prove his appeal with “clear and convincing evidence.” RSA, § 9.8. Yet, an appellant will have only five pages of argument to carry his burden of proof. RSA, § 9.7(a). The “clear and convincing” standard is substantially more difficult to prove than the “proximate cause” standard — the normal burden of proof in a civil lawsuit at the courthouse—which only requires proof of probability of slightly greater than 50%. Having to prove a significant behavioral CTE manifestation, for example, in by “clear and convincing” evidence in only five pages will make a successful appeal extremely rare.

The Armstrong Objectors, therefore, propose the RSA be revised to (i) eliminate the NFL's right to appeal a player's monetary award (or, in the alternative, limit the number of appeals the NFL may file to ten per year, as set forth in the initial version of the settlement), (ii) eliminate the \$1000 fee charged to players for filing an appeal, and (iii) change the “clear and convincing” burden of proof standard to the “proximate cause” standard.

11. The amount of the RSA settlement fund is insufficient. The Armstrong Objectors object to the RSA because of the insertion intermediate monetary award caps and reductions. According to Co-Lead Class Counsel, the initial, rejected settlement had an ultimate capped value to the players of \$675 million⁶ — which was based on analyses performed by

⁶ An additional \$75 million is earmarked for the BAP.

medical experts, actuaries and economists predicting (i) the number of former NFL players who are brain damaged, (ii) the ultimate nature and extent of their brain damage, and (c) the money necessary to compensate such brain damage under the initial, rejected settlement. The NFL and Class Counsel, however, did not share their analyses with the Court, and the Court, in part, rejected the initial settlement as insufficient because of the ultimate cap.

Even though the cap was eliminated in the RSA, the NFL and Co-Lead Class Counsel confidently state that \$675 million will still be enough to fund the deal. The only way this can be true is by implementing the above-described and objected-to aspects of the RSA; to wit, *e.g.*, the omitted TBI coverage, limiting qualification criteria, treatment limitations, and intermediate monetary award caps, reductions, and penalties. Indeed, the February 10, 2014 report written for Class Counsel by Thomas Vasquez, Ph.D., entitled *NFL Concussion Liability Forecast* (Doc. #6167), states that only an estimated 3600 out of the 21,000 former NFL players (17.14%) “are estimated to develop compensable injuries and participate in the settlement.” *Id.* at 3. If \$675 million was not enough the first time, it definitely is not enough now. The Armstrong Objectors, therefore, propose the RSA be revised to require the NFL to increase the settlement fund, include the omitted TBI, and eliminate the limiting qualification criteria, treatment limitations, and intermediate monetary award caps, reductions, and penalties..

12. The full extent of the analyses and supporting documents and information underlying the RSA have not been disclosed. The Armstrong Objectors object to the RSA because the NFL and Co-Lead Class Counsel have not disclosed the full extent of the underlying analyses, documents and information on which the RSA is predicated. Brain damage from playing football is a public health issue and a public policy issue, both from the standpoint of the safety and well-being of our children and loved ones, and the shared medical costs (private

insurance and/or Medicare) of treating the afflicted. If the NFL has information about the incidence and prevalence of the cognitive costs of playing football, such information should be shared with the public. The public has a need and a right to know just as in any other case involving a public harm.

The RSA also will foreclose any future discovery on the issue from the NFL, which means the public will never know what the NFL knew about brain damage and when the NFL knew it. According to Alan C. Milstein, a Temple University School of Law professor who specializes in bioethics and clinical trials litigation, disclosure of the underlying analyses, documents and information is not about the NFL, but about:

[T]he NCAA and high school football and junior high football and peewee football. And about parents understanding whether or not they should let their kid play football. We will never know that critical information about the seriousness of concussions because the NFL is buying peace and they are also buying silence. That is what is really wrong with this situation.

Alan C. Milstein, *Brutality's the Winner in the NFL Settlement*, THE NAT'L LAW J. (September 9, 2013). The Armstrong Objectors, therefore, propose the Revised Settlement be revised to require the NFL and Co-Lead Class Counsel to disclose the analyses, documents and information underpinning the RSA or give counsel herein at least 180 days to conduct discovery against the NFL and present the evidence to the Court. There is no reason to rush to a settlement when 21,000 Class Members' medical future is at stake for the next 65 years.

13. The RSA does not take scientific advances into consideration. The Armstrong Objectors object to the RSA because although it is designed to last for 65 years, it does not adequately allow for advances in neuroscience. Many scientists believe there will be a way to detect CTE in the living within the next decade. Scientists in Chicago are experimenting with a screening test that measures vision, eye movement and optic nerve irregularities. Boston

University CTE researcher Robert Stern and his team of scientists are conducting a comprehensive study of 100 NFL retirees with the goal of identifying CTE biomarkers. Other researchers are developing and refining scanning technology to see tau deposits in the brain. In July 2014, Massachusetts General Hospital scientists attending the Alzheimer's Association International Conference in Copenhagen announced a new type of brain imaging that can show tau tangles in living people for the first time. The RSA, however, barely considers future scientific advances.

Although 65 years in length, the RSA specifically prohibits the NFL and Co-Lead Class Counsel from meeting more than once every ten years to discuss possible changes to the qualifying diagnoses and protocols for making them, with actual modifications requiring approval from both sides. RSA, §6.6(a). In other words, if the NFL unilaterally does not want to accept a new method of detecting CTE, for example, it will not be required to do so. Nor is there any mechanism in the RSA to force the NFL to do so. Even then, any such scientific advances incorporated into the RSA going forward will not change the Monetary Award Grid.

The Armstrong Objectors, therefore, propose the RSA be revised to provide for a more frequent and democratic mechanism (perhaps a third-party arbitrator to break any ties) for reviewing, identifying, incorporating, and implementing qualifying diagnoses and the protocols for making them based on scientific advances over the term of the RSA.

14. The additional attorneys' fees and expenses are excessive. The Armstrong Objectors object to the \$112.5 million of additional attorneys' fees and expenses payable to Co-Lead Class Counsel and other lawyers in leadership positions (RSA, Article XXI) — despite conducting no discovery against the NFL. Without discovery, Co-Lead Class Counsel was severely hamstrung in their ability to thoroughly and accurately evaluate the case and the NFL's

settlement offers. Based on the discovery taken to date — *i.e.*, none — how can Counsel for the NFL and Co-Lead Class Counsel, all of whom are officers of the Court, possibly represent in good faith to the Court that the RSA is fair and reasonable? How could \$112.5 million of additional attorneys' fees and expenses have been earned?

What's more, the \$112.5 million of attorneys' fees and expenses are in addition to the contingent attorneys' fees and expenses payable to the lawyers by the players under their individual fee agreements; the \$112.5 million of attorneys' fees and expenses are a "double dip" and a windfall. Many of the players who have filed Short Form Complaints are represented by attorneys who are requesting, or will request, part of the \$112.5 million of attorneys' fees. It is unfair for these Class Members to pay attorneys' fees twice, and any Class Counsel who is awarded attorneys' fees should not be allowed to also recover attorneys' fees under the individual contracts with their clients. Further, their clients may not be paid for years under the RSA even though the NFL will pay the \$112.5 million of additional fees and expenses into a fund within sixty days after the effective date of the RSA. *Id.*, §21.2. Not only should these additional attorneys' fees be reduced, but no double dipping should be allowed and any lawyer, including Co-Lead Class Counsel, receiving attorneys' fees should be obligated to continue to help the players secure relief under the RSA, or a committee should be established to help Class Members with the committee members paid for their time on a reasonable hourly basis.

The \$112.5 million of additional fees and expenses also is excessive when compared on an "apples to apples" basis to the Co-Lead Class Counsel's projected value of the monetary awards under the RSA (*i.e.*, \$675 million). Assuming the entire \$675 million is paid to the former players in equal annual payments over 65 years, the present value of the RSA monetary awards computed using a discount rate of 3.2 % (the August 18, 2014 30-year Treasury bond

rate) is approximately \$292 million. The present value of the additional attorneys' fees and expenses (*i.e.*, \$112.5 million) is 38.52% of the present value of the RSA — which is an excessive percentage in and of itself, but even more offensive since no discovery was taken and the fact that all plaintiffs' counsel will be paid under the individual contracts with their clients.

Also buried deep in the RSA is a vague provision calling for a potential five percent (5%) "set-aside" on every monetary award that Co-Lead Class Counsel may petition the Court to award to them to "facilitate the Settlement program and related efforts of Class Counsel" (RSA, §21.3) — whatever that means.

The Armstrong Objectors, therefore, propose the RSA be further revised to reduce the \$112.5 million award of additional attorneys' fees and expenses and eliminate the 5% set aside completely. All lawyers should receive their fees under their individual client contracts over time as their clients actually receive their RSA monetary awards, unless they are recovering class fees, in which case they should not be allowed to double dip. This will ensure that the lawyers will continue to work in the best interests of their clients to make sure their clients are appropriately compensated from the RSA. The up-front payment of \$112.5 million of additional attorneys' fees and expenses will only incentivize counsel to "take their money and run" to the next big case, leaving their clients to fend for themselves against the NFL when the clients need their lawyers the most. A portion of the \$112.5 million of additional attorneys' fees and expenses and eliminated 5% set aside could then fund additional player benefits (as set forth above).

15. The Education Fund should be eliminated. The Armstrong Objectors object to the \$10 million Education Fund in the RSA. *Id.*, Article XII; §2.1(hh);(ii). It is ill-defined on many levels. The scope, nature, extent, protocols, education programs, recipients, management

and administration of the Education Fund will be determined at a later date. *Id.* To the extent the Education Fund will be used for “the education of Retired NFL Football Players regarding the NFL CBA Medical and Disability Benefits programs and other educational initiatives benefitting Retired NFL Football Players” (RSA, §12.1), the Parties should not receive credit because this education is already being (or should be) provided by the NFL. To the extent any tangible benefits will be provided by the Education Fund, they will further be reduced because the “costs and expenses to administer the Education Fund will be paid out of the [\$10 million].” RSA, §12.2.

Most important, the Armstrong Objectors object to the Education Fund because it is an improper initial *cy pres* fund⁷ that diverts \$10 million of settlement funds away from the players to unnamed recipients for undefined activities. Such funds should be utilized for the benefit of the players (as described above), rather than directed from the get go to unidentified third parties who have no claims in this litigation.

In a class action settlement, “[t]he *cy pres* doctrine allows a court to distribute unclaimed or non-distributable portions of a class action settlement fund to the ‘next best’ class of beneficiaries.” *Nachshin v. AOL, LLC*, 663 F.3d 1034, 1036 (9th Cir. 2011) (citation omitted). *Cy pres* distributions must account for the nature of the plaintiffs’ lawsuit, the objectives of the underlying statutes, and the interests of the silent class members, including their geographic diversity. *Id.*

⁷ The term “*cy pres*” is derived from the Norman French expression *cy pres comme possible*, which means “as near as possible.” *Democratic Cent. Comm. v. Washington Metro. Area Transit Comm’n*, 84 F.3d 451, 455 n.1 (D.C. Cir. 1996). The *cy pres* doctrine originated in trusts-and-estates law as a rule of construction used to preserve testamentary charitable gifts that otherwise would fail. “When it becomes impossible to carry out the charitable gift as the testator intended, the doctrine allows the ‘next best’ use of the funds to satisfy the testator’s intent ‘as near as possible.’” *Id.* (quoting Natalie A. DeJarlais, Note, *The Consumer Trust Fund: A Cy Pres Solution to Undistributed Funds in Consumer Class Actions*, 38 HASTINGS L.J. 729, 730 (1987)).

Direct distributions to settlement class members are preferred over *cy pres* distributions. *In re Baby Products Antitrust Litig.*, 708 F.3d 163, 173 (3d Cir. 2013). The private causes of action aggregated in this proceeding—as in other class actions—were initiated to allow plaintiffs to recover compensatory damages for their injuries. *Cy pres* distributions imperfectly serve that purpose by substituting for such direct compensation an indirect benefit that is, at best, attenuated and, at worse, illusory. *Id.* (citing *Mirfasihi v. Fleet Mortg. Corp.*, 356 F.3d 781, 784–85 (7th Cir. 2004)). *Cy pres* distributions also present a potential conflict of interest between class counsel and their clients because including a *cy pres* distribution may increase a settlement fund, and with it, attorneys’ fees, without increasing the direct benefit to the class. *In re Baby Products Antitrust Litig.*, 708 F.3d at 173. Where a court fears counsel is conflicted, it should subject the settlement to increased scrutiny. *Id.*

That said, *cy pres* is an accepted method of addressing leftover, or residual, funds remaining in a settlement account once all known settlement class members have been made whole. *Cy pres* may be used in class action settlements “where the proof of individual claims would be burdensome or distribution of damages costly.” *Dennis v. Kellogg Co.*, 697 F.3d 858, 865 (9th Cir. 2012). Under principles established by the American Law Institute (“ALI”), any leftover funds should first be distributed to known class members; only when it is not economically viable to do so should a court engage in a *cy pres* program:

A court may approve a settlement that proposes a *cy pres* remedy even if such a remedy could not be ordered in a contested case. The court must apply the following criteria in determining whether a *cy pres* award is appropriate:

- (a) If individual class members can be identified through a reasonable effort, and the distributions are sufficiently large to make individual distributions economically viable, settlement proceeds should be distributed directly to individual class members.

- (b) If the settlement involves individual distributions to class members and funds remain after distributions (because some class members could not be identified or chose not to participate), the settlement should presumptively provide further distributions to participating class members unless the amounts involved are too small to make individual distributions economically viable or other specific reasons exist that would make such further distributions impossible or unfair.
- (c) If the court finds that individual distributions are not viable based on the criteria set forth in subsections (a) and (b), the settlement may utilize a *cy pres* approach. The court, when feasible, should require the parties to identify a recipient whose interests reasonably approximate those being pursued by the class. If, and only if, no recipient whose interests reasonably approximate those being pursued by the class can be identified after thorough investigation and analysis, a court may approve a recipient that does not reasonably approximate the interests being pursued by the class.

PRINCIPLES OF THE LAW OF AGGREGATE LITIGATION § 3.07 (Am. Law. Inst. 2010); *see also In re Checking Account Overdraft Litig.*, Case No. 1:09-MD-02036-JLK, at 2–3 (S.D. Fla. Apr. 15, 2013) (Exhibit A). The ALI further clarifies in its comments to § 3.07:

[A]ssuming that further distributions to the previously identified class members would be economically viable, that approach is preferable to *cy pres* distributions. This Section rejects the position urged by a few commentators that a *cy pres* remedy is preferable to further distributions to class members. . . . This Section takes the view that in most circumstances, distributions to class members better approximate the goals of the substantive laws than distributions to third parties that were not directly injured by the defendant’s conduct.

PRINCIPLES OF THE LAW OF AGGREGATE LITIGATION § 3.07 cmt.b.

A *cy pres* distribution, therefore, should take place only when a court cannot distribute settlement funds to known class members. *See In re Checking Account Overdraft Litig.*, at 3; *Nachshin*, 663 F.3d at 1038 (“In the context of class action settlements, a court may employ the *cy pres* doctrine to ‘put the *unclaimed fund* to its next best compensation use, *e.g.*, for the aggregate, indirect, prospective benefit of the class.’”) (emphasis added) (citing *Masters v.*

Wilhelmina Model Agency, Inc., 473 F.3d 423, 436 (2d Cir. 2007) (quoting 2 HERBERT B. NEWBERG & ALBA CONTE, NEWBERG ON CLASS ACTIONS § 10:17 (4th ed. 2002))).

Similar to the proposed Education Fund *cy pres* in the Revised Settlement, the settlement in *In re Checking Account Overdraft Litigation* skipped over the “distribution to known class members” provided for by the ALI procedures and moved directly to *cy pres* through an “initial *cy pres* program.” *In re Checking Account Overdraft Litig.*, at 3. There, the “initial *cy pres* program” set aside 12.5% of the net settlement fund as the estimated amount that would have been paid to the settlement class members who the lawyers estimated were “unidentifiable due to a dearth of adequate banking records.” *Id.* at 3–4. While the settlement agreement allowed for the remainder of the fund to be paid to known settlement class members for whom the parties had adequate data, the 12.5% set aside would go directly to the *cy pres* fund. *Id.* at 4.

The court, however, went on to hold that such a settlement provision did not comply with the ALI principles outlined above, requiring unidentifiable class members’ shares of settlement funds to be paid to known settlement class members before any *cy pres* program is enacted. *Id.* In fact, the court changed its mind regarding the *cy pres*, noting that an objector correctly argued at the final fairness hearing that “*cy pres* is intended to be a residual program, what you do with the remainder,” and that this initial pre-distribution of funds was not *cy pres* at all, because the known class members have not yet been made whole. *Id.* (citations omitted).

The court ultimately required the 12.5% set aside to be given to known settlement class members ahead of non-party *cy pres* charities, noting the 12.5% set aside “was, and is, not a proper *cy pres* program,” but instead “a diversion of funds that does not comport with the proper procedure for utilizing a *cy pres* program in the distribution of class action settlement funds as outlined by the ALI.” *Id.* at 4–5; *see also Dennis*, 697 F.3d at 865–67 (rejection of initial *cy pres*

fund comprising \$5.5 million of Kellogg food items to be donated to charities feeding the indigent — albeit for reasons other than ALI class settlement fund distribution principles).

Similarly, here, the proposed Education Fund is not a proper *cy pres* program, but instead, a diversion of funds away from the players—the Class Members—that does not comport with the proper procedure for a *cy pres* program under the ALI principles and governing case law. It is indisputable the RSA will not make the players whole. That being the case, the Armstrong Objectors propose the RSA be revised to eliminate the Education Fund so that the \$10 million can be utilized for the direct benefit of the players (as described above).

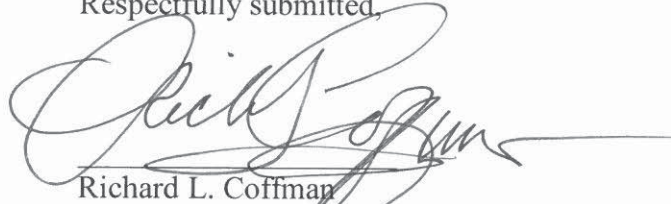
16. The release is too broad. The Armstrong Objectors object to the release in the RSA. The Court most likely is aware of *Dent, et al, v. National Football League*; Cause No. C-14-2324 KAW; in the United States District Court for the Northern District of California, a putative class action, wherein plaintiffs sued the NFL regarding the promotion and use of various medications that were either improperly used or illegally used and dispensed. One of the medications, Toradol, as stated above, can actually increase the likelihood of a concussion according to some medical reports. The release in the RSA arguably releases the Class Members' claims in *Dent*. The Armstrong Objectors, therefore, propose the release in the RSA be revised and narrowed to release only the claims being compensated in the settlement of this litigation.

WHEREFORE, the Armstrong Objectors respectfully request that the Court (i) enter an order (a) denying final approval of the settlement embodied in the June 25, 2014 Class Action Settlement Agreement (Doc. #6087), and (b) recommending the Parties revise the Class Action

Settlement Agreement as set forth above, and (ii) grant such other and further relief to themselves and Class Members the Court deems just and proper.

Date: October 13, 2014

Respectfully submitted,



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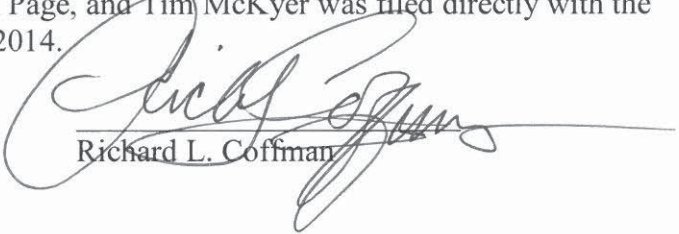
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**Counsel for Ramon Armstrong, Nathaniel
Newton, Jr., Larry Brown, Kenneth Davis,
Michael McGruder, Clifton L. Odom, George**

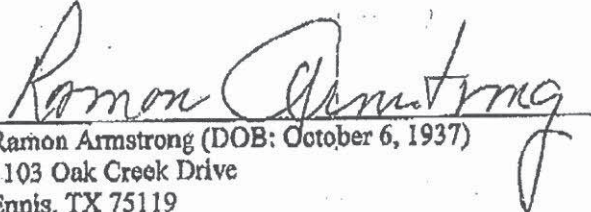
Jeremy Loyd, Gary Wayne Lewis, Lorenzo Lynch, Hurles Scales, Gregory Evans, David Mims, Evan Ogelsby, Phillip E. Epps, Charles L. Haley, Sr., Kevin Rey Smith, Darryl Gerard Lewis, Curtis Bernard Wilson, Kelvin Mack Edwards, Sr., Dwayne Levels, Solomon Page, and Tim McKyer

CERTIFICATE OF SERVICE

I certify that a true copy of the Amended Objection to the June 25, 2014 Class Action Settlement Agreement by Ramon Armstrong, Nathaniel Newton, Jr., Larry Brown, Kenneth Davis, Michael McGruder, Clifton L. Odom, George Teague, Drew Coleman, Dennis DeVaughn, Alvin Harper, Ernest Jones, Michael Kiselak, Jeremy Loyd, Gary Wayne Lewis, Lorenzo Lynch, Hurles Scales, Gregory Evans, David Mims, Evan Ogelsby, Phillip E. Epps, Charles L. Haley, Sr., Kevin Rey Smith, Darryl Gerard Lewis, Curtis Bernard Wilson, Kelvin Mack Edwards, Sr., Dwayne Levels, Solomon Page, and Tim McKyer was filed directly with the Court, via overnight delivery, on October 13, 2014.


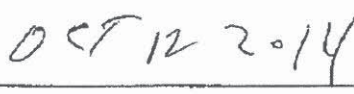

Richard L. Coffman

Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Amended Objection to the June 25, 2014 Class Action Settlement Agreement in this matter, and I authorize my above-listed Counsel to file the Amended Objection on my behalf.


Ramon Armstrong (DOB: October 6, 1937)
1103 Oak Creek Drive
Ennis, TX 75119
(214) 538-6420

10-9-14
Date

Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Amended Objection to the June 25, 2014 Class Action Settlement Agreement in this matter, and I authorize my above-listed Counsel to file the Amended Objection on my behalf.

Larry Brown (DOB: November 30, 1969)
5603 Sycamore Drive
Colleyville, TX 76034
(817) 723-5601

Date


Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Amended Objection to the June 25, 2014 Class Action Settlement Agreement in this matter, and I authorize my above-listed Counsel to file the Amended Objection on my behalf.



Michael McGruder (DOB: May 6, 1964)
835 East Lamar Blvd. #236
Arlington, TX 76011
(214) 208-0240

Oct 8, 2014
Date

Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Amended Objection to the June 25, 2014 Class Action Settlement Agreement in this matter, and I authorize my above-listed Counsel to file the Amended Objection on my behalf.



George Teague (DOB: February 18, 1971)
1000 Delaware Drive
Carrollton, TX 75010
(469) 742-3630

10/7/14

Date

Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Amended Objection to the June 25, 2014 Class Action Settlement Agreement in this matter, and I authorize my above-listed Counsel to file the Amended Objection on my behalf.

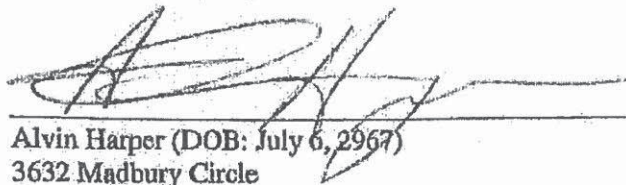


Dennis DeVaughn (DOB: October 28, 1960)
2416 Clear Field Drive
Plano, TX 75025
(214) 414-6981

10/10/14

Date


Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Amended Objection to the June 25, 2014 Class Action Settlement Agreement in this matter, and I authorize my above-listed Counsel to file the Amended Objection on my behalf.



Alvin Harper (DOB: July 6, 2967)
3632 Madbury Circle
Lakeland, FL 33810
(310) 467-8357

Date 10/12/14

Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Amended Objection to the June 25, 2014 Class Action Settlement Agreement in this matter, and I authorize my above-listed Counsel to file the Amended Objection on my behalf.


Ernest Jones (DOB: December 13, 1964)
3101 Highland Meadows
Seagoville, TX 75159
(469) 516-9094

Oct 6, 2014
Date

Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Amended Objection to the June 25, 2014 Class Action Settlement Agreement in this matter, and I authorize my above-listed Counsel to file the Amended Objection on my behalf.

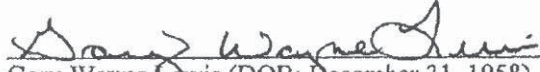


Michael Kiselak (DOB: March 9, 1967)
906 Chimney Hill Trail
Southlake, TX 76092
(214) 797-6363

10-6-2014

Date

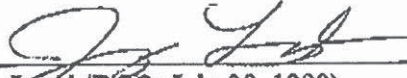
Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Amended Objection to the June 25, 2014 Class Action Settlement Agreement in this matter, and I authorize my above-listed Counsel to file the Amended Objection on my behalf.



Gary Wayne Lewis (DOB: December 31, 1958)
1225 Town Center Drive #3007
Pflugerville, TX 78660
(903) 573-3149

10-2-2014
Date

Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Amended Objection to the June 25, 2014 Class Action Settlement Agreement in this matter, and I authorize my above-listed Counsel to file the Amended Objection on my behalf.



Jeremy Loyd (DOB: July 30, 1980)
10858 Deer Creek Drive
Tyler, TX 75707
(903) 570-7059

10/10/14

Date

Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Amended Objection to the June 25, 2014 Class Action Settlement Agreement in this matter, and I authorize my above-listed Counsel to file the Amended Objection on my behalf.

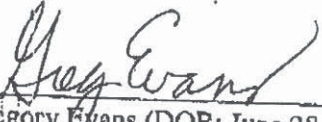
Harold Fisher

Hurles Scales (DOB: December 1, 1950)
3110 Royal Lane
Dallas, TX 75229
(214) 542-8419

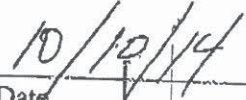
Oct. 10, 2014

Date _____

Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Amended Objection to the June 25, 2014 Class Action Settlement Agreement in this matter, and I authorize my above-listed Counsel to file the Amended Objection on my behalf.



Gregory Evans (DOB: June 28, 1971)
6004 Lost Valley Drive
Denton, TX 75056
(214) 235-2660



Date

Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Amended Objection to the June 25, 2014 Class Action Settlement Agreement in this matter, and I authorize my above-listed Counsel to file the Amended Objection on my behalf.

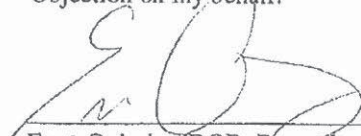


David Mims (DOB: May 18, 1988)
280 CR 3104 Mason
Daingerfield, TX 75638
(832) 332-5891

OCT 9, 2014

Date

Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Amended Objection to the June 25, 2014 Class Action Settlement Agreement in this matter, and I authorize my above-listed Counsel to file the Amended Objection on my behalf.



Evan Oglesby (DOB: December 18, 1981)
154 Hughes Street
Toccoa, GA 30577
(256) 648-1766

10/9/19
Date

Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Amended Objection to the June 25, 2014 Class Action Settlement Agreement in this matter, and I authorize my above-listed Counsel to file the Amended Objection on my behalf.

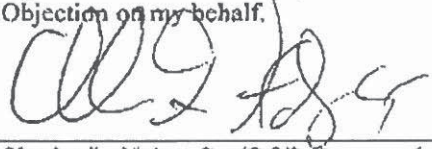
Phillip E. ERS

Phillip B. Epps (DOB: November 11, 1938)
2920 Berissa
Grand Prairie, TX 75054
(214) 478-9943

10-8-14

Date _____

Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Amended Objection to the June 25, 2014 Class Action Settlement Agreement in this matter, and I authorize my above-listed Counsel to file the Amended Objection on my behalf.

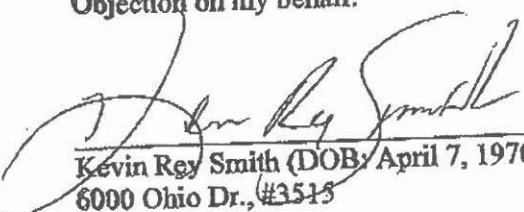


Charles L. Haley, Sr. (DOB: January 6, 1964)
10428 Rosser Cir
Dallas, TX 75229
(469) 853-5650

10/19/14

Date

Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Amended Objection to the June 25, 2014 Class Action Settlement Agreement in this matter, and I authorize my above-listed Counsel to file the Amended Objection on my behalf.


Kevin Rey Smith (DOB: April 7, 1970)
6000 Ohio Dr., #3513
Plano, TX 75093
(214) 562-2296


Date

Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Amended Objection to the June 25, 2014 Class Action Settlement Agreement in this matter, and I authorize my above-listed Counsel to file the Amended Objection on my behalf.

Darryl Gerard Lewis
Darryl Gerard Lewis (DOB: April 16, 1961)
574 County Rd 3109
Omaha, TX 75571
(903) 380-0696

10-7-2014
Date

Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Amended Objection to the June 25, 2014 Class Action Settlement Agreement in this matter, and I authorize my above-listed Counsel to file the Amended Objection on my behalf.

Curtis Bernard Wilson
Curtis Bernard Wilson (DOB: June 28, 1960)

8154 Glenhollow
Houston, Texas 77033
(832) 888-3682

Date 10/8/2014

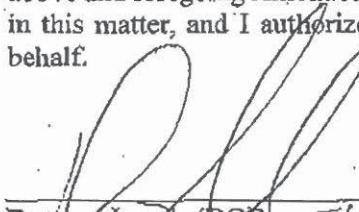
Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Amended Objection to the June 25, 2014 Class Action Settlement Agreement in this matter, and I authorize my above-listed Counsel to file the Amended Objection on my behalf.

Kelvin Mack Edwards Sr.

Kelvin Mack Edwards, Sr. (DOB: July 19, 1964)
1716/Brook Arbor Ct
Arlington, TX 76018
(469) 223-1484

10/8/14
Date

Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Amended Objection to the June 25, 2014 Class Action Settlement Agreement in this matter, and I authorize my above-listed Counsel to file the Amended Objection on my behalf.

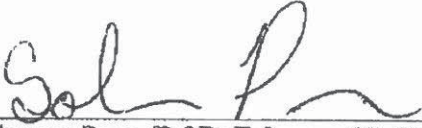


Dwayne Levels (DOB: 5/9/1979)
1400 Domain Dr. #5217
Austin, TX 757858
(214) 641-1939

10/8/14

Date

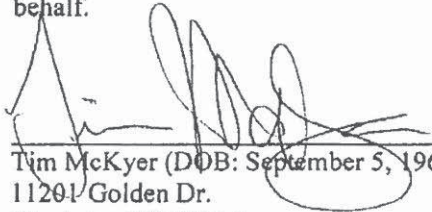
Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Amended Objection to the June 25, 2014 Class Action Settlement Agreement in this matter, and I authorize my above-listed Counsel to file the Amended Objection on my behalf.



Solomon Page (DOB: February 27, 1976)
9302 Vista Circle
Irving, TX 75063
(214) 927-3313

10.8.14
Date

Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Amended Objection to the June 25, 2014 Class Action Settlement Agreement in this matter, and I authorize my above-listed Counsel to file the Amended Objection on my behalf.



Tim McKyer (DOB: September 5, 1963)
11201 Golden Dr.
Charlotte, NC 28216
(704) 819-5203

10-9-1214
Date

EXHIBIT “A”

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA**

**IN RE NATIONAL FOOTBALL
LEAGUE PLAYERS' CONCUSSION
INJURY LITIGATION**

No. 2:12-md-02323-AB

MDL No. 2323

THIS DOCUMENT RELATES TO

All Actions

**DECLARATION OF DRS. BRENT E. MASEL AND GREGORY J. O'SHANICK IN
SUPPORT OF BIAA'S MOTION FOR LEAVE TO FILE *AMICUS CURIAE* BRIEF**

I, Dr. Brent E. Masel, M.D., and I, Dr. Gregory J. O'Shanick, M.D., hereby declare as follows:

1. We serve in the volunteer capacities of National Medical Director and National Medical Director Emeritus, respectively, for the Brain Injury Association of America ("BIAA").
2. BIAA is the nation's oldest and largest brain injury patient advocacy organization. Its mission is to advance brain injury prevention, research, treatment, and education for the 2.4 million children and adults who sustain traumatic brain injuries in the U.S. each year. BIAA's status as a publicly supported, tax-exempt organization under Section 501(c)(3) of the Internal Revenue Code compels the organization to bring certain facts pertaining to traumatic brain injury ("TBI") to the attention of the Court in the interests of the public at large.
3. I, Dr. Masel, graduated from Loyola Medical School in Maywood, Ill., in 1974. I completed my internship and Neurology residency at the University of Texas Medical Branch ("UTMB") at Galveston in 1978. Following this training, I established a Neurology private

practice in Galveston and received certification in 1980 from the Board of Psychiatry and Neurology. Currently I am a Clinical Professor in the Department of Neurology, and Clinical Assistant Professor in Family Medicine, Internal Medicine, Physical Therapy and Occupational Therapy at UTMB. In 1992, I became the medical director of the Transitional Learning Center ("TLC"), and in January of 1994, I left private practice to become the president of this post-acute brain injury rehabilitation facility. I have provided numerous in-service training seminars and lectures at a variety of local, state and national conferences. I frequently speak on the topic of growth hormone deficiency and hypopituitarism and rehabilitation following a brain injury, as well as the long-term medical issues following a TBI. I currently serve on the governing board of The Moody Endowment, which supports organizations committed to the rehabilitation of individuals suffering from head injuries and related charitable, educational and scientific activities.

4. I, Dr. O'Shanick, am a former chairman of the board of directors of BIAA. In May 2011, I became the medical director emeritus for BIAA, after serving for 14 years as its first national medical director. Over the past 30 years, I have treated more than 11,000 patients with brain injuries while serving on the faculties of three different medical schools and in private practice. Since 1991, I have served as the president and medical director of the Center for Neurorehabilitation Services in Richmond, Va. I hold board certification in four medical subspecialties (Behavioral Neurology and Neuropsychiatry, Neurorehabilitation, Psychosomatic Medicine and General Psychiatry) and have published three books, 12 academic textbook chapters and more than 70 peer-reviewed publications. I have presented at national and international medical conferences and have served as an advisor to numerous federal agencies including the Centers for Disease Control and Prevention, Department of Defense, National

Institutes of Health and National Institute on Disability and Rehabilitation Research. I was selected to serve on the Examination Oversight Committee by the American Board of Psychiatry and Neurology and the American Board of Physical Medicine and Rehabilitation to develop the subspecialty board certification in Brain Injury Medicine.

5. BIAA's and our relevant expertise, acquired over decades of service in the fields of neuroscience and treatment of brain injury, makes us uniquely qualified to assist the Court with its assessment of the settlement in this case.

6. We have identified several concerning aspects of the preliminarily-approved settlement, and respectfully ask the Court for the opportunity to present our findings more fully in an *amicus curiae* brief. Below we outline our concerns.

A. Numerous physical and behavioral consequences of TBI are excluded from the list of qualifying diagnoses for treatment and compensation under the settlement.

7. A mild TBI, also known as a concussion, is a complex pathophysiological process induced by biomechanical forces to the head or to another part of the body that transmit to the head. The injury produces an alteration of brain function that results in a wide range of neurological, physical, cognitive, and neuropsychological impairments. These impairments can appear on an intermittent or persistent basis immediately or as many as ten or more years after injury.

8. The neurologic consequences of mild TBI include motor, sensory, and autonomic dysfunction as well as vestibular (balance) disturbances, visual perceptual (depth perception, visual figure ground) and oculomotor deterioration (impaired eye tracking, eye-hand coordination), anosmia (loss of sense of smell), ageusia (loss of sense of taste), and posttraumatic headache. Mild TBI can bring about movement disorders, such as Parkinsonism and epilepsy.

The risk of developing epilepsy as long as ten years after TBI is 1.5 times that of non-injured persons. Sleep abnormalities (including central sleep apnea) are common in individuals with mild TBI and are associated with an increased risk of stroke. Mild TBI also increases the risk of pituitary hormonal dysfunction. Symptoms from these deficits include atherosclerosis (hardening of the arteries), fatigue, decreased muscle mass and weakness, mood abnormalities, and cognitive changes. A recent study of 68 retired NFL players who were screened for pituitary dysfunction found hormonal abnormalities in approximately 24% of those studied.

9. The cognitive challenges associated with mild TBI vary and change over time. Early in recovery, arousal, attention, and concentration difficulties are prominent, as are memory-encoding problems. Later, difficulties with divided attention, memory retrieval and executive functioning, such as reasoning, planning, sequencing, decision-making and judgment, may emerge. Cognitive recovery evolves at a different pace for each person, with many interdependent factors affecting recovery. Some individuals with mild TBI recover well and return to previous levels of functioning; others do not. Even after returning to routine activities, individuals with mild TBI may experience reduced cognitive efficiency and inconsistency of performance. Such patients may have persistent difficulty recognizing, assessing and managing novel, complex or stressful situations, making it difficult to monitor changes in their health or to reliably comply with medication or medical treatment regimens.

10. The neurobehavioral consequences of mild TBI are significant. Population-based studies demonstrate a several fold increase in depression, anxiety and impulse control disorders, such as disinhibition, aggression and substance abuse in patients with mild TBI. Even subtle damage to frontal lobe systems can prevent the person with mild TBI from effectively suppressing or consistently managing undesirable behavior, including suicide and suicidal

ideation. Thus, loss of frontal lobe inhibitory control in tandem with escalating depression and the tendency for males to seek self-medication solutions for physical or emotional pain form a potentially explosive combination for those with mild TBI.

11. Many of the physical, neurological and neurobehavioral consequences of TBI are missing from the list of qualifying diagnoses in the preliminarily-approved settlement.

B. The settlement's approach to diagnosis of neurocognitive impairment is deeply flawed and will serve to exclude retired NFL players and limit their access to medical benefits and compensation.

12. The determination of eligibility is heavily weighted towards those with severe memory dysfunction and/or evidence of neuromuscular abnormality, which is reflected in the reliance on neuropsychological evaluation in isolation from other indices of functional impairment in day-to-day settings (including information from reliable family members, etc.). In addition, the specification of a basic neurological evaluation excludes the abundance of literature on the multiplicity of other neurological abnormalities potentially present after mild TBI that would be undetected by a "basic" neurological examination. To be maximally effective at identifying those players with residual deficits, it is well accepted by the brain injury professional community that an approach that is more holistic, human-based, and less linguistically reliant is preferred. A more broadly based performance assessment that will not under-estimate pre-morbid intelligence for a personal baseline TBI comparison is needed. Such subtleties reinforce the need for clinical experience to make proper judgment in these assessments.

13. The proposed settlement provides for a "standard" or "basic" neurological examination, which is not sufficient to diagnose and document all symptoms associated with post-concussion syndrome or mild TBI. An elemental or basic neurological examination

commonly assesses for those motor and sensory abnormalities that reflect either spinal cord dysfunction or motor or sensory cortex injury/disease and fails routinely to incorporate those regions of the brain involved in integrating multi-sensory or sensorimotor aspects of brain function. While it is reasonable that with an appropriately developed neuropsychological battery one can omit the mental status/cognitive portion of a neurological examination, it is a major deficit to omit detailed assessments of Cranial Nerves I-XII, motor integration, balance, fine motor control, pathological reflexes involving frontal suppressive systems, and extrapyramidal functions to name but a few. The “standard” neurological evaluation must be a detailed neurological evaluation.

14. Eligibility for compensation is based on a discrepancy between current function and an estimate of pre-morbid function. The Test of Premorbid Function (“TOPF”) is used to assess pre-morbid function. The TOPF is a word reading test that requires the subject to read a list of words and pronounce them “exactly.” Thus individuals who speak with a dialect or accent are at a disadvantage, as are individuals with TBI-related speech impairments like dysarthria. (Estimates of the prevalence of dysarthria following traumatic brain injury vary from 10% to 60%.) In addition, the TOPF is unreliable in cases where there is a history of reading disability or in cases where injury or illness affects reading ability.

15. The way in which moderate cognitive decline is defined is also flawed. If a player has impairment in language or visual spatial function, but not in executive function, learning or memory, they would not qualify. This will exclude people with significant impairment in single domains, like aphasia, or severe memory dysfunction. While the prevalence of aphasia post-TBI is unknown, it presents in a variety of ways, sometimes

independent of other impairment. In addition, if a player is severely impaired in only a single domain, such as memory, he would be excluded from receiving benefits.

C. The downward adjustment of monetary awards on the basis of the number of eligible seasons, the Class Member's age at the time of Qualifying Diagnosis, and/or the presence of stroke or TBI demonstrates a serious lack of understanding of mild TBI.

16. A single concussion, whether diagnosed or not, is capable of generating debilitating physical, cognitive and behavioral impairments that interfere with the activities of daily living and require treatment throughout the lifespan. Therefore, the nature and extent of the impairment – not the number of seasons played – should be the determining factor in any monetary award. Many retired NFL players who sustained concussions went undiagnosed or were not held-out from play or practice. Thus, the definition of eligible season unfairly excludes players who may have been concussed but did not spend “at least two (2) regular or postseason games on the injured reserve list or inactive list due to a concussion or head injury.” Similarly, while it is reasonable to assume that exposure to mild TBI increases as playing time increases, it is not reasonable to assume that multiple concussions sustained over a short period of time are less debilitating than multiple concussions sustained over a long period of time. In fact, the opposite is true. A patient who sustains repetitive concussions that go unresolved will exhibit symptoms akin to more severe TBI.

17. Similarly, it is unfair to offset a monetary award by 75 percent based on the existence of a stroke or TBI occurring prior to a qualifying diagnosis. Persons who sustain one concussion are predisposed to re-injury, both on and off the field. Severity of injury increases with recurrent injury, as does the likelihood of disability. In a study of over 30,000 individuals in Taiwan, individuals with mild TBI had a 1.7 times increased risk of stroke over those who had not sustained a brain injury.

18. Finally, the Class Member's age at the time of qualifying diagnosis should not be a factor in calculating a monetary award. The consequences of a brain injury are the same whether experienced in the past (as with the case of a hypothetical 60-year-old retired player who has exhibited symptoms for decades) or the future (as with the case of a hypothetical 30-year-old retired player who has not yet exhibited symptoms). The sole factor in determining monetary awards should be the nature and extent of the impairment.

D. The proposed settlement over-relies on board certification as an indicator of expertise in diagnosing and treating patients with mild TBI.

19. On its own, board certification is not a sufficient indicator of expertise in the subspecialty of TBI, as the American Boards of Psychiatry and Neurology and the American Board of Physical Medicine and Rehabilitation concluded with their establishment of a joint subspecialty Board certification in Brain Injury Medicine in September 2011. Years of experience, involvement in relevant scientific and professional societies, peer-reviewed journal publications, invited presentations, federal grant awards, or active practice in Joint Commission on Accreditation of Healthcare Organizations or Commission on Accreditation of Rehabilitation Facilities programs are more reliable indicators of expertise in diagnosing and treating the complex and heterogeneous consequences of mild TBI.

E. The proposed settlement limits pharmacy vendors to mail order providers.

20. While the establishment of a consistent means for providing routine and stable medications to injured players is appropriate, some medications – particularly human growth hormone (costing \$15-20,000 yearly for life) used to treat pituitary dysfunction in patients with mild TBI – require distribution that controls for temperature, light, vibration and other conditions and cannot be reliably distributed by mail order. Further, during periods of medication adjustment and trials to determine efficacy and dosage amounts, the use of a mail order

pharmacy slows down the turnaround time in medication acquisition, preventing the physician from making quick and immediate medication changes, and, typically can only refill for a 90-day period which may be excessively wasteful should a therapeutic trial be unsuccessful after several days or even weeks.

F. The BAP Supplemental Benefits program within the proposed settlement fails to recognize the full extent of the treatment team that may be required to support injured players in recovering or maintaining physical, cognitive and behavioral function after mild TBI.


21. The standard of care for patients with TBI dictates that rehabilitation and other medical treatment plans be developed and carried out by a multi-disciplinary team of licensed, credentialed clinicians working in specialized settings and accredited programs. The specialties may include endocrinology, physical medicine, ophthalmology, neuro-optometry, otolaryngology, psychiatry, physical therapy, occupational therapy, speech language therapy, and neurobehavioral therapy. Settings may include inpatient rehabilitation hospitals or units, residential rehabilitation facilities, outpatient clinics or at home by licensed providers. As proposed, only board-certified neuropsychologists would be eligible to provide treatment.

* * *

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I declare under penalty of perjury that the foregoing is true and correct.

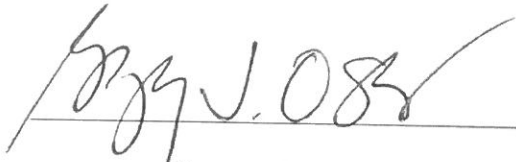
Executed on September 26 2014.

A handwritten signature in dark ink, appearing to read "Brent E. Masel", is written over a horizontal line.

Brent E. Masel, M.D.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on September 26, 2014.

A handwritten signature in black ink, appearing to read "Gregory J. O'Shanick", written over a horizontal line.

Gregory J. O'Shanick, M.D.

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA**

**IN RE: NATIONAL FOOTBALL
LEAGUE PLAYERS' CONCUSSION
INJURY LITIGATION**

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**No. 12-md-2323 (AB)**

MDL No. 2323

**THIS DOCUMENT RELATES TO:  
ALL ACTIONS**

## DECLARATION OF RICHARD L. COFFMAN

Pursuant to 28 U.S.C. § 1746, I, Richard L. Coffman, declare as follows:

1. I am an attorney licensed to practice law in the State of Texas. I am also admitted to practice in the United States District Courts for the Eastern, Western, Northern and Southern Districts of Texas, the Central District of Illinois, the Eastern District of Michigan, the United States Court of Appeals for the First, Third, Fifth, Seventh and Ninth Circuits, the United States Court of Federal Claims and the United States Supreme Court.

2. I am a shareholder in, and President of, the Coffman Law Firm in Beaumont, Texas. I have personal knowledge of the facts stated in this Declaration and, if called as a witness, I could, and would, testify competently to them. I make this Declaration pursuant to Section 14.3(b) of the June 25, 2014 Class Action Settlement Agreement (Doc. #6087) in support of the Armstrong Objectors' Amended Objection to the June 25, 2014 Class Action Settlement Agreement.

3. I have filed a Notice of Appearance in this matter (Doc. #6161) and hereby attest that I represent Ramon Armstrong, Nathaniel Newton, Jr., Larry Brown, Kenneth Davis, Michael McGruder, Clifton L. Odom, George Teague, Drew Coleman, Dennis DeVaughn, Alvin Harper,

Ernest Jones, Michael Kiselak, Jeremy Loyd, Gary Wayne Lewis, Lorenzo Lynch, Hurles Scales, Gregory Evans, David Mims, Evan Oglesby, Phillip E. Epps, Charles L. Haley, Sr., Kevin Rey Smith, Darryl Gerard Lewis, Curtis Bernard Wilson, Kelvin Mack Edwards, Sr., Dwayne Levels, Solomon Page, and Tim McKyer (collectively, the “Armstrong Objectors”) in this matter, all of whom are Settlement Class Members on whose behalf I filed an Amended Objection to the June 25, 2014 Class Action Settlement Agreement.

I declare under penalty of perjury the foregoing is true and correct.

Executed: October 13, 2014.

  
Richard L. Coffman

Richard L. Coffman  
**THE COFFMAN LAW FIRM**  
 505 Orleans St., Ste. 505  
 Beaumont, TX 77701  
 Telephone: (409) 833-7700  
 Facsimile: (866) 835-8250  
 Email: [rcoffman@coffmanlawfirm.com](mailto:rcoffman@coffmanlawfirm.com)

**Counsel for Ramon Armstrong, Nathaniel Newton, Jr., Larry Brown, Kenneth Davis, Michael McGruder, Clifton L. Odom, George Teague, Drew Coleman, Dennis DeVaughn, Alvin Harper, Ernest Jones, Michael Kiselak, Jeremy Loyd, Gary Wayne Lewis, Lorenzo Lynch, Hurles Scales, Gregory Evans, David Mims, Evan Oglesby, Phillip E. Epps, Charles L. Haley, Sr., Kevin Rey Smith, Darryl Gerard Lewis, Curtis Bernard Wilson, Kelvin Mack Edwards, Sr., Dwayne Levels, Solomon Page, and Tim McKyer**







**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF PENNSYLVANIA**

**IN RE: NATIONAL FOOTBALL  
LEAGUE PLAYERS' CONCUSSION  
LITIGATION**

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**No. 12-md-2323 (AB)**

**MDL No. 2323**

**THIS DOCUMENT RELATES TO:  
ALL ACTIONS**

**DECLARATION OF JASON C. WEBSTER**

Pursuant to 28 U.S.C. § 1746, I, Jason C. Webster, declare as follows:

1. I am an attorney licensed to practice law in the State of Texas. I am also admitted to practice in the United States District Courts for the Northern and Southern Districts of Texas, the Supreme Court of Pennsylvania, the Eastern, Western, and Middle Districts of Pennsylvania, the New York Court of Appeals, the Supreme Court of Mississippi, the Supreme Court of Oklahoma, the Supreme Court of Illinois, and the Fifth Circuit Court of Appeals.

2. I am the sole shareholder of The Webster Law Firm in Houston, Texas. I have personal knowledge of the facts stated in this Declaration and, if called as a witness, I could, and would, testify competently to them. I make this Declaration pursuant to Section 14.3(b) of the June 25, 2014 Class Action Settlement Agreement (Doc. #6087) in support of the Armstrong Objectors' Amended Objection to the June 25, 2014 Class Action Settlement Agreement.

3. I have filed a Notice of Appearance in this matter (Doc. #6161) and hereby attest that I represent Ramon Armstrong, Nathaniel Newton, Jr., Larry Brown, Kenneth Davis, Michael McGruder, Clifton L. Odom, George Teague, Drew Coleman, Dennis DeV Vaughn, Alvin Harper, Ernest Jones, Michael Kiselak, Jeremy Loyd, Gary Wayne Lewis, Lorenzo Lynch, Hurles Scales,

Gregory Evans, David Mims, Evan Ogelsby, Phillip E. Epps, Charles L. Haley, Sr., Kevin Rey Smith, Darryl Gerard Lewis, Curtis Bernard Wilson, Kelvin Mack Edwards, Sr., Dwayne Levels, Solomon Page, and Tim McKyer (collectively, the "Armstrong Objectors") in this matter, all of whom are Settlement Class Members on whose behalf I filed an Amended Objection to the June 25, 2014 Class Action Settlement Agreement.

I declare under penalty of perjury the foregoing is true and correct.

Executed: October 13, 2014.



Jason Webster  
THE WEBSTER LAW FIRM  
6200 Savoy, Suite 515  
Houston, TX 77036  
Telephone: (713) 581-3900  
Facsimile: (713) 409-6464  
Email: jwebster@thewebsterlawfirm.com

**Counsel for Ramon Armstrong, Nathaniel Newton, Jr., Larry Brown, Kenneth Davis, Michael McGruder, Clifton L. Odom, George Teague, Drew Coleman, Dennis DeVaughn, Alvin Harper, Ernest Jones, Michael Kiselak, Jeremy Loyd, Gary Wayne Lewis, Lorenzo Lynch, Hurles Scales, Gregory Evans, David Mims, Evan Ogelsby, Phillip E. Epps, Charles L. Haley, Sr., Kevin Rey Smith, Darryl Gerard Lewis, Curtis Bernard Wilson, Kelvin Mack Edwards, Sr., Dwayne Levels, Solomon Page, and Tim McKyer**



**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN OF PENNSYLVANIA**

**IN RE: NATIONAL FOOTBALL  
LEAGUE PLAYERS’ CONCUSSION  
LITIGATION**

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**No. 12-md-2323 (AB)**

**MDL No. 2323**

**THIS DOCUMENT RELATES TO:  
ALL ACTIONS**

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**OBJECTIONS TO JUNE 25, 2014 CLASS ACTION SETTLEMENT AGREEMENT**

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**TO THE HONORABLE UNITED STATES DISTRICT COURT:**

Settlement Class Members Liyongo Patrise Alexander, Charlie Anderson, Charles E. Arbuckle, Cassandra Bailey, as Representative of the Estate of Johnny Bailey Jr., deceased, Ben Bronson, Curtis Ceaser, Jr., Larry Centers, Darrell Colbert, Harry Colon, Christopher Crooms, Jerry W. Davis, Tim Denton, Michael Dumas, Corris Ervin, Doak Field, Baldwin Malcolm Frank, Derrick Frazier, Murray E. Garrett, Clyde Glosson, Roderick Harris, Wilmer K. Hicks, Jr., Patrick W. Jackson, Gary D. Jones, Ryan McCoy, Jerry James Moses, Anthony E. Newsom, Rance Olison, John Owens, Robert Pollard, Derrick Pope, Glenell Sanders, Thomas Sanders, Dwight Scales, Todd C. Scott, Frankie Smith, Jermaine Smith, Tyrone Smith, James A. Young Sr. (collectively, the “Alexander Objectors”) file these Objections to the revised settlement in the Class Action Settlement Agreement as of June 25, 2014 (Doc. #6087) (the “RSA”), and respectfully show the following:

**OBJECTIONS TO THE RSA**

The Alexander Objectors, all Retired NFL Football Players (or Representative Claimants) represented by the undersigned counsel (see attached declarations), object to the RSA because of

the following deficiencies:

1. Lack of adequate representation. The Alexander Objectors object to the RSA because the class representatives have not fairly and adequately protected the interests of the class given intra-class conflicts. Fed. R. Civ. P. 23(a)(4). This is evidenced in part by the RSA limiting compensation for CTE to individuals who died before preliminary approval of the Settlement; a class member whose CTE is discovered in the future receives nothing. Additionally, lack of adequate representation is evidenced by the RSA's significant offsets for non-football-related traumatic brain injury or stroke; the class representatives did not adequately represent objectors' interest in eliminating or reducing such offset. Finally, intra-class conflicts exist as to players, unlike the class representatives, with experience playing in NFL Europe, given that the RSA purports to release those claims but fails to give the players "eligible season" credit for playing in NFL Europe. These intra-class conflicts preclude certification of the settlement class. *See, e.g., Amchem Prods., Inc. v. Windsor*, 521 U.S. 591 (1997). On these points, the Alexander Objectors incorporate by reference as though fully set forth at length herein the Objection of Sean Morey, Alan Faneca, Ben Hamilton, Robert Royal, Roderick "Rock" Cartwright, Jeff Rohrer, and Sean Considine to Class Action Settlement (Dkt. No. 6201, pp. 20-36).

2. The notice is misleading and inadequate under Rule 23. The Alexander Objectors further object to the RSA because the notice is ambiguous, misleading and inadequate. Notice is insufficient when it is false or misleads class members about the terms of the settlement. *See, e.g., Eubank v. Pella Corp.*, 753 F.3d 718 (7th Cir. 2014). Here, the notice is misleading to class members for the reason that it fails to alert them to the fact that they will not be compensated for current or future CTE; fails to reveal that the estimated age of diagnosis will significantly reduce

any associated award; and fails to note that only a tiny fraction of the class members are estimated to receive any monetary compensation at all. For example, the notice and accompanying charts and tables create the impression that future claims of “Death w/ CTE” will be compensated like the other diseases listed as a “Qualifying Diagnosis,” which is untrue. Moreover the notice fails to disclose that many class members will never realize the maximum awards or otherwise receive any compensation under the Settlement. On these points, the Alexander Objectors incorporate by reference as though fully set forth at length herein the Objection of Sean Morey, Alan Faneca, Ben Hamilton, Robert Royal, Roderick “Rock” Cartwright, Jeff Rohrer, and Sean Considine to Class Action Settlement (Dkt. No. 6201, pp. 37-53).

3. The RSA is unfair, unreasonable and inadequate. The Alexander Objectors further object because the RSA is unfair, unreasonable and inadequate. Factors relevant to a determination of the fairness of a class-wide settlement include: (1) the stage of the proceedings and the amount of discovery completed; (2) the ability of the defendant to withstand a greater judgment; (3) the reaction of the class to the settlement; (4) the risks of establishing liability and damages; (5) the range of reasonableness of the settlement fund in light of the best possible recovery in light of all the attendant risks of litigation; (6) the risks of maintaining the class action through the trial; and (7) the complexity, expense and likely duration of the litigation. *Girsh v. Jepsen*, 521 F.3d 153, 157 (3d Cir. 1975). Each such factor demonstrates why the settlement should not be approved:

- a. Class counsel appear to have conducted no discovery to develop the merits of the claims, choosing instead to settle without any basic factual record;
- b. With annual multi-billion dollar revenues, the NFL can withstand a judgment many times the amount of the settling parties’ own valuation of the settlement;

- c. The reaction from the class has been negative from the outset;
- d. The risks of establishing liability and damages cannot be fully analyzed, given the absence of any discovery; nevertheless, publicly-available information demonstrates the strength of the plaintiffs' claims and the weaknesses of the NFL's defenses;
- e. The "real value" of the settlement to the class falls well short of its face value and thus, the settlement is not reasonable in light of the best possible recovery;
- f. The likelihood of maintaining class status through trial weighs against approval; that is, aside from the adequacy of the representation, the remaining requirements of Rule 23(a)—numerosity, commonality and typicality—are satisfied; and
- g. The potential complexity, expense and duration of the litigation weighs against approval.

On these points, the Alexander Objectors incorporate by reference as though fully set forth at length herein the Objection of Sean Morey, Alan Faneca, Ben Hamilton, Robert Royal, Roderick "Rock" Cartwright, Jeff Rohrer, and Sean Considine to Class Action Settlement (Dkt. No. 6201, pp. 54-84).

4. *The RSA incorporates terms, standards, provisions, and other documents that are not sufficiently disclosed.* The Alexander Objectors also object to the RSA for the additional reason that portions of the RSA are vague, ambiguous, and/or not sufficiently disclosed. For example, the RSA references terms, standards, provisions, and other documents that are not disclosed in advance so that a Settlement Class Member may ascertain the fairness, reasonableness, or adequacy of the same. Specifically, Exhibit 2 (p. 5) to the RSA states that "a user manual will be provided to neuropsychologist setting out the cut-off scores, criteria for identifying impairment in each cognitive domain, and statistical and normative data to support the impairment criteria" and "additional information relating to the evaluation of effort and performance validity will be provided in a clinicians interpretation guide" (p. 3). User manuals and guides that will determine whether a claim meets the definition of a qualifying diagnosis

should be provided to class members to evaluate prior to the Court determining the fairness of the settlement.

5. The underlying analyses and supporting documents have been withheld. The Alexander Objectors further object to the RSA because the underlying analyses, documents and information on which the RSA is predicated has not been disclosed. Brain damage from playing football is a public health issue. If the NFL has information about the incidence and prevalence of the cognitive costs of playing football, such information should be shared with the public. The public has a need and a right to know. But, the RSA will foreclose any future discovery on the issue from the NFL, which means the public will never know what the NFL knew and when the NFL knew it. Therefore, the RSA should be revised to require the NFL and Co-Lead Class Counsel to disclose the analyses, documents and other information supporting the RSA.

6. The additional attorneys' fees and 5% set aside are excessive. The Alexander Objectors further object to the up-front fee and expense payment to Co-Lead Class Counsel of \$112.5 million, as well as the 5% set aside, both of which are in addition to the contingent attorneys' fees payable to the lawyers by the players under their individual fee agreements. To the extent the NFL has agreed to pay the additional, excessive sum of \$112 million, it appears to have done so in trade for Co-Lead Class Counsel agreeing to a release of all future CTE claims. And, despite having conducted no discovery, Co-Lead Class Counsel negotiated this preferential payment for themselves, while settlement class members will have to wait up to 65 years for their benefits, if any. Finally, the 5% set aside, which is in addition to the up-front payment of \$112 million, is likewise excessive and constitutes "double-dipping." The RSA should be revised to reduce the \$112.5 million award of additional attorneys' fees and expenses and to eliminate the 5% set aside completely.

7. Maximum monetary awards are insufficient. The Alexander Objectors further object to the RSA because individual awards for qualifying players and/or their families remain capped. (See Monetary Award Grid, Exhibit B-3 to the RSA). These amounts, which are subject to further reductions (see below), are insufficient to compensate the injured players and/or their families.

8. Reductions to maximum monetary awards. The Alexander Objectors object to the RSA for the additional reason that the maximum monetary awards are subject to reductions—often, significant reductions—based on offsets for age, career length, and other factors. (See RSA §6.7, Exhibit B-3). Former players with fewer than five years of NFL experience will see their awards reduced, some significantly. The same holds true for retirees over 45 — the older a player is when diagnosed with brain damage, the less money he will receive. The RSA also reduces monetary awards by 75% for any former player who has suffered a single non-football related traumatic brain injury or stroke, even though there is no scientific reason to presume that a single non-football brain injury accounts for 75% of a player’s afflictions.

9. Death with CTE. The Armstrong Objectors object to the RSA because a “Death with CTE” qualifying diagnosis requires, as noted above, retirees to have died and been diagnosed with CTE prior to July 7, 2014. (See RSA, §6.3(f)). Thus, if an NFL retiree dies after that date, and regardless of whether the player commits suicide and it is ultimately determined he suffered from CTE, his family will not qualify for an award. An arbitrary cutoff date of July 7, 2014, when compensation drops from \$4 million to zero for the same diagnosis, is unfair, unreasonable, and inadequate. Furthermore, it ignores that CTE is at the heart of this litigation and the disease that made football brain damage a public health concern. Yet the RSA forecloses every NFL retiree who has yet to die and be diagnosed with CTE from receiving a “Death by

CTE.” What’s more, the RSA does not assign similar cutoff dates to former players diagnosed with ALS, Alzheimer’s or Parkinson’s. The RSA should be revised to delete the date parameters of the “Death with CTE” qualifying diagnosis and expand the list of CTE symptoms that qualify for compensation and lift the restriction on the date of death as well as increase the size of the awards for death with CTE.

10. Baseline Assessment Program (“BAP”). The Alexander Objectors further object to the RSA because of the length of the program and the tight deadlines under which retired NFL players must operate. (See RSA, Art. V.) Retired players must register within 180 days after notice is posted, otherwise, they will be deemed ineligible for baseline tests and awards. Thereafter, players older than age 43 must take their baseline exams within two years after the BAP is launched, while younger players must take the exams before their 45th birthday or within ten years of the start of the program. After 10 years, no baseline exams will be conducted, making it nearly impossible to qualify for a monetary award under the RSA. The BAP also screens for cognitive deficits and signs of dementia, but only offers monetary awards for specific neurodegenerative diseases, which leaves players who suffer from other significant ailments linked to repetitive brain injury, but which do not rise to the level of Parkinson’s or ALS, to receive nothing more than counseling and prescription drug coverage. Additionally, the BAP program neuropsychologists cannot make qualifying diagnoses of Alzheimer’s, Parkinson’s or ALS. Instead, retirees must visit a settlement-approved doctor and pay for their own medical testing and related travel expenses.

11. Amount of compensation paid depends on fair providers. The Alexander Objectors further object to the RSA because disability can only be determined by neuropsychologists who are pre-selected for the BAP, rather than a neuropsychologist chosen by

a player. (See RSA, Art. V) Requiring neuropsychologists to pre-register for the BAP will substantially reduce the number of treating doctors involved, as such doctors rarely seek this kind of work. The physician selection criteria also will dissuade most busy treating doctors from participating. The RSA therefore should be revised to allow the players to select and utilize their treating physicians, without penalty, as long as the treating physicians are Board Certified in neurology.

12. Neuropsychological opinion required. The Alexander Objectors further object to the RSA because the determination of the cognitive impairment groups is based entirely on the neuropsychological determination of cognitive impairment. Type I CTE—which impacts younger players—is almost entirely a behavioral problem, not a cognitive problem. Any cognitive changes will be the type not susceptible to measurement in someone under age 60. While some behavioral problems may have cognitive manifestations, they are not likely to manifest themselves in examinations in non-stressful environments, like a neuropsychologist’s office. The RSA should be revised to allow for compensation for these behavioral problems and the players should be entitled to rely on own physicians to diagnose same.

13. Unlimited appeals. The Alexander Objectors further object to the RSA because the NFL may appeal as many monetary awards as it chooses. Under the RSA, the NFL can delay simply by appealing an unlimited number of claims. (RSA, § 9.6(b)). And, while there is no charge for the NFL to appeal, players must pay a \$1,000 fee. The RSA also requires an appealing player to prove his appeal with “clear and convincing evidence,” (RSA, § 9.8), yet authorizes only five pages of argument to carry that burden. (RSA, § 9.7(a)). The “clear and convincing” standard is substantially more difficult to prove than the “proximate cause” standard — the normal burden of proof in a civil lawsuit at the courthouse. The RSA be revised to





No. C-14-2324 KAW; in the United States District Court for the Northern District of California, a putative class action against NFL regarding the promotion and use of various medications that were either improperly or illegally used and dispensed. Again, the release in the RSA be revised and narrowed to release only the claims being compensated in the settlement of this litigation.

### **REQUEST FOR RELIEF**

For the reasons stated above, as well as those set forth in detail in the objections incorporated herein, the Alexander Objectors respectfully request that the Court (i) enter an order (a) denying final approval of the settlement embodied in the Class Action Settlement Agreement as of June 25, 2014 (Doc. #6087), and/or (b) recommending the Parties revise the Class Action Settlement Agreement in consideration of the above, and (ii) grant such other and further relief to the former NFL players the Court deems just and proper.

Date: October 14, 2014

Respectfully Submitted,

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ATTORNEYS FOR THE ALEXANDER PLAINTIFFS/OBJECTORS

## CERTIFICATE OF SERVICE

I hereby certify that on this 14th day of October, 2014, a true and correct copy of the foregoing ***Objections to June 25, 2014 Class Action Settlement Agreement*** has filed with the United States District Court for the Eastern District of Pennsylvania via the Court's CM/ECF system, which will provide electronic notice to all counsel of record and a copy is also being served by First Class Mail on:

Clerk of the District Court/NFL Concussion Settlement  
U.S. District Court for the Eastern District of Pennsylvania  
United States Courthouse  
601 Market Street  
Philadelphia, PA 19106-1797

/s/ Adam Q. Voyles

Adam Q. Voyles

**UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF PENNSYLVANIA**

IN RE: NATIONAL FOOTBALL  
LEAGUE PLAYERS' CONCUSSION  
INJURY LITIGATION

No. 2:12-md-02323-AB  
MDL No. 2323

Kevin Turner and Shawn Wooden,  
*on behalf of themselves and  
others similarly situated,*

Civil Action No. 2:14-cv-00029-AB

Plaintiffs,

v.

National Football League and  
NFL Properties, LLC,  
successor-in-interest to  
NFL Properties, Inc.,

Defendants.

THIS DOCUMENT RELATES TO:  
ALL ACTIONS

**MOTION OF SEAN MOREY, ALAN FANECA, BEN HAMILTON, ROBERT ROYAL,  
RODERICK CARTWRIGHT, JEFF ROHRER, AND SEAN CONSIDINE FOR  
SCHEDULING CONFERENCE**

Sean Morey, Alan Faneca, Ben Hamilton, Robert Royal, Roderick "Rock" Cartwright, Jeff Rohrer, and Sean Considine (the "Movants") respectfully move for this Court to order the parties to participate in a scheduling conference before this Court's November 19, 2014 fairness hearing, for purposes of setting a schedule for the fairness hearing. A proposed order is attached. In support of this motion, Movants state as follows:

1. This Court has scheduled a fairness hearing for November 19, 2014 to determine whether the Settlement should be approved. Dkt. No. 6084, at 7. The Settlement is long and complex – it is a 95-page document (plus almost 60 pages of appendices) that purports to resolve

all Mild Traumatic Brain Injury (MTBI)-related claims of every member of a class of retired NFL players.

2. Absent class members have raised significant objections to the Settlement. *See, e.g.*, Dkt. No. 6201. For example, even though Co-Lead Class Counsel have proclaimed that “CTE is believed to be the most serious and harmful disease that results from NFL and concussions,”<sup>1</sup> the Settlement fails to compensate all current and future cases of CTE. *Id.* at 21-32. It also imposes a 75% offset for a single instance of non-football-related traumatic brain injury or stroke and fails to credit seasons played in NFL Europe. *Id.* at 32-36. The short and long form notices, moreover, both contain numerous false and misleading statements that preclude class members from understanding even the basic terms of the Settlement. *Id.* at 37-53. And the confusing and arbitrary hurdles to be eligible for compensation will preclude many individuals who otherwise qualify for compensation from recovering under the Settlement. *Id.* at 72-77. In addition to these criticisms, four of the world’s leading experts on MTBI have filed declarations

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<sup>1</sup> Co-Lead Class Counsel Seeger Weiss used to explain on its website the prevalence of CTE among current and future NFL players:

Frequent brain trauma or multiple football concussions . . . has shown to cause serious mental health problems. ***Thousands of football players, many of whom are thought to have suffered more than one hundred mild traumatic brain injuries, are dealing with horrible and debilitating symptoms.***

Multiple medical studies have found direct correlation between football concussions and suffering from symptoms of chronic traumatic encephalopathy, also known as CTE. ***CTE is believed to be the most serious and harmful disease that results from NFL and concussions.*** CTE is a progressive degenerative disease that causes damage to the brain tissue and the accumulation of Tau Proteins.

*Up-To-Date Information on NFL Football Concussions*, Seeger Weiss LLP, (Sept. 3, 2014), <http://www.seegerweiss.com/football-concussions/#ixzz3CByVHxui> (emphasis added) (Objection 2 n.1 & Ex. 1). Seeger Weiss quickly removed that language from its website after oral argument in the Third Circuit on September 10, 2014, after the inadequate representation and failure to compensate CTE, as well as this language on their website, was raised.

pointing out further fatal flaws in the Settlement. *See* Dkt. No. 6201-16 (Stern Decl.); Dkt. No. 6232-1 (Gandy Decl.); Dkt. No. 6180-2 (Masel & O’Shanick Decl.).

3. The NFL and Class Counsel have failed to address any of these issues despite having ample time and opportunity to do so. Movants raised many of these issues in their May 5, 2014, Motion to Intervene. Dkt. No. 8, at 13-23. Movants also raised these issues in their July 2, 2014, Objection to Class Action Settlement and Opposition to Motion for Preliminary Approval, Dkt. No. 6082, at 18-40, as well as during proceedings in the Third Circuit appealing the preliminary approval, Doc. No. 003111686114 (3d Cir. No. 14-8103). Neither the NFL nor Class Counsel have addressed these issues on the merits in their responsive pleadings.

4. Instead, the NFL and Class Counsel have both stated that they intend to present – at the fairness hearing and not a moment earlier – evidence supporting the fairness and adequacy of the proposed Settlement. *See* Dkt. No. 6183 (Class Counsel), at 22 (“at the Fairness Hearing, the undersigned will provide the Court with all it needs to determine whether the proposed Settlement should be finally approved”); Dkt. No. 6185 (NFL), at 2 (“Class Counsel and the NFL Parties will submit and present to the Court ample evidence to support the fairness of the Class Action Settlement, including affidavits, briefing and testimony”).

5. Even though the Settlement will adjudicate substantial rights involving the health and well-being of approximately 20,000 class members, absent class members have been given absolutely no indication of what that evidence will be. Nor have their wives, their girlfriends, and others around them, even though they will also be affected by the Settlement. Going into the fairness hearing without being informed of Class Counsel’s and the NFL’s positions on significant issues, not to mention their “ample evidence,” puts absent class members at a major

disadvantage. The lack of information provided to absent class members will also dilute the value of any cross-examination.

6. This Court may order a scheduling conference in the interest of orderly presentation of the evidence at the fairness hearing. Under Rule 23(d), this Court may issue any order to “determine the course of proceedings or prescribe measures to prevent undue repetition or complication in presenting evidence or argument” or “deal with similar procedural matters.” Fed. R. Civ. P. 23(d)(1)(A), (E). Moreover, courts have substantial discretion in fashioning procedures for a Rule 23(e) fairness hearing to provide for the effective and orderly presentation of evidence.<sup>2</sup>

7. Because Class Counsel appear to have conducted no formal discovery whatsoever, Movants filed a motion for leave to conduct limited discovery for purposes of preparing for the fairness hearing. Dkt. No. 6169. Even though absent class members have been kept in the dark regarding the negotiations that led to the Settlement as well as the strength of the defenses to the core allegations, both Class Counsel and the NFL opposed Movants’ limited request. *See* Dkt. Nos. 6183 (Class Counsel), 6185 (NFL). Movants then filed a motion for leave to file a reply in support of their motion for limited discovery. Dkt. No. 6211. Those motions remain pending.

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<sup>2</sup> *See Manual for Complex Litigation* §22.924 (4th ed.) (describing procedures for obtaining information before a fairness hearing and stating that “some trial-type procedures for the fairness hearing” or “an evidentiary hearing” might be called for if “there are objections to the settlement or reasons for the court to be skeptical of its fairness”); *Carlough v. Amchem Prods., Inc.*, 5 F.3d 707, 711 (3d Cir. 1993) (describing the district court’s appointment of a special master to “assist in discovery and other pre-hearing matters” in a case where objectors were granted leave to conduct discovery); *In re Diet Drugs (Phentermine, Fenfluramine, Dexfenfluramine) Prods. Liab. Litig.*, No. MDL 1203, Civ. A. 99-20593, 2002 WL 32067308, at \*1-2 (E.D. Pa. Nov. 26, 2002) (describing the district court’s scheduling of two status conferences before a fairness hearing, which “provided the objectors with ample opportunity to identify the type of information that they hoped to glean from [discovery]”).

8. A scheduling conference is necessary here because of the complexity of the Settlement; the significance of the life-and-death issues raised by this case; the significance of the defects in the Settlement that have been raised by absent class members; the NFL's and Class Counsel's failure to respond meaningfully to the objections of absent class members; and the NFL's and Class Counsel's statements that they intend to proffer evidence at the fairness hearing without indicating what that evidence might be.

WHEREFORE, for the reasons stated above, Sean Morey, Alan Faneca, Ben Hamilton, Robert Royal, Roderick Cartwright, Jeff Rohrer, and Sean Considine respectfully request that the Court set a scheduling conference before the November 19, 2014 fairness hearing for purposes of addressing the manner in which the fairness hearing will proceed, and to the extent the Court will allow, for purposes of addressing outstanding discovery motions before the fairness hearing.



Dated: October 15, 2014

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*Attorneys for Movants*

**CERTIFICATE OF SERVICE**

I hereby certify that on October 15, 2014, I caused the foregoing Motion for Scheduling Conference and Proposed Order to be filed with the United States District Court for the Eastern District of Pennsylvania via the Court's CM/ECF system, which will provide electronic notice to all counsel and parties.

/s/ Steven F. Molo

**UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF PENNSYLVANIA**

IN RE: NATIONAL FOOTBALL  
LEAGUE PLAYERS' CONCUSSION  
INJURY LITIGATION

No. 2:12-md-02323-AB  
MDL No. 2323

Kevin Turner and Shawn Wooden,  
*on behalf of themselves and  
others similarly situated,*

Civil Action No. 2:14-cv-00029-AB

Plaintiffs,

v.

National Football League and  
NFL Properties, LLC,  
successor-in-interest to  
NFL Properties, Inc.,

Defendants.

THIS DOCUMENT RELATES TO:  
ALL ACTIONS

**MOTION OF SEAN MOREY, ALAN FANECAL, BEN HAMILTON, ROBERT ROYAL,  
RODERICK CARTWRIGHT, JEFF ROHRER, AND SEAN CONSIDINE TO ORDER  
CLASS COUNSEL AND THE NFL TO PRODUCE EVIDENCE**

Sean Morey, Alan Faneca, Ben Hamilton, Robert Royal, Roderick "Rock" Cartwright, Jeff Rohrer, and Sean Considine (the "Movants") respectfully move for this Court to order Class Counsel and the NFL to produce the evidence upon which they intend to rely at this Court's November 19, 2014 fairness hearing and the evidence upon which they relied when they agreed to the Settlement. A proposed order is attached. In support of this motion, Movants state as follows:

1. This Court has scheduled a fairness hearing for November 19, 2014 to determine whether the Settlement is fair, adequate, and reasonable, and thus, should be approved. Dkt. No. 6084, at 7.

2. On October 6, 2014, Movants filed their objection to the proposed Settlement, in which they raised substantial challenges to the Settlement’s adequacy and fairness. Dkt. No. 6201. The objection demonstrates how, on its face, the Settlement fails to meet the requirements of Rule 23 and due process. Objectors have also submitted affidavits of eminent researchers who have analyzed the Settlement information and have raised issues—for example, inappropriate testing procedures—the settling parties are likely to contend are fact-bound and will attempt to rebut with information not in the Settlement.

3. As Movants noted in their motion for limited discovery, Class Counsel has conducted no formal discovery in this proceeding. Dkt. No. 6169-1, at 2. Neither Class Counsel nor the NFL denied that fact in their oppositions. Dkt. No. 6183 (Class Counsel); Dkt. No. 6185 (NFL Parties). Instead, they stated their intention to provide evidence of the fairness of the Settlement at the fairness hearing. *See* Dkt. No. 6183 (Class Counsel), at 22 (“at the Fairness Hearing, the undersigned will provide the Court with all it needs to determine whether the proposed Settlement should be finally approved”); Dkt. No. 6185 (NFL), at 2 (“Class Counsel and the NFL Parties will submit and present to the Court ample evidence to support the fairness of the Class Action Settlement, including affidavits, briefing and testimony”). Movants’ Motion for Leave to Conduct Limited Discovery was denied on October 15, 2014. Dkt. No. 6245.

4. Because of the absence of any formal discovery by Class Counsel and the inability to conduct any discovery on their own, Movants have been left completely in the dark as to the evidence supporting the fairness of the Settlement.

5. It is the burden of the settling parties to demonstrate the Settlement is fair, adequate, and reasonable. *See In re Gen. Motors Corp. Pick-Up Truck Fuel Tank Prods. Liab. Litig.*, 55 F.3d 768, 785 (3d Cir. 1995). Movants have a right to the evidence: (1) Class Counsel

and the NFL intend to rely on at the fairness hearing; and (2) on which Class Counsel and the NFL relied when they agreed to enter into the Settlement. “Parties to the settlement agreement should generally provide access to discovery produced during the litigation phases of the class action (if any) as a means of facilitating appraisal of the strengths of the class positions on the merits.” *Manual for Complex Litigation*, § 21.643 (4th ed.); *In re Cmty. Bank of N. Va.*, 418 F.3d 277, 316 (3d Cir. 2005). In opposing Movants’ motion for limited discovery, Class Counsel and the NFL assured this Court that they will present at the fairness hearing “ample evidence” and “all it needs to determine whether the proposed Settlement should be finally approved.” *See* Dkt. No. 6183 (Class Counsel), 22; Dkt. No. 6185 (NFL), at 2. But Movants are entitled to access that evidence *before* the fairness hearing so that they can properly prepare and meaningfully participate in the fairness hearing. *See Rogel v. Am. Broad. Cos.*, 74 F.3d 40, 44 (3d Cir. 1996) (holding that imposition of sanctions without an evidentiary hearing is not consistent with due process).

WHEREFORE, for the reasons stated above, Sean Morey, Alan Faneca, Ben Hamilton, Robert Royal, Roderick “Rock” Cartwright, Jeff Rohrer, and Sean Considine, request an order that Class Counsel and the NFL produce the evidence they relied on when they agreed to the Settlement and the evidence upon which they intend to rely at the November 19, 2014 fairness hearing, including: (i) the names, contact information, and a summary of testimony of any witness they intend to call; (ii) a declaration of any expert setting forth the basis for that expert’s testimony; and (iii) any documents they intend to introduce.

Dated: October 21, 2014

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*Attorneys for Movants*

**CERTIFICATE OF SERVICE**

I hereby certify that on October 21, 2014, I caused the foregoing Motion for Production of Evidence to be filed with the United States District Court for the Eastern District of Pennsylvania via the Court's CM/ECF system, which will provide electronic notice to all counsel and parties.

/s/ Steven F. Molo

**UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF PENNSYLVANIA**

IN RE: NATIONAL FOOTBALL  
LEAGUE PLAYERS' CONCUSSION  
INJURY LITIGATION

No. 2:12-md-02323-AB  
MDL No. 2323

Kevin Turner and Shawn Wooden,  
*on behalf of themselves and  
others similarly situated,*

Civil Action No. 2:14-cv-00029-AB

Plaintiffs,

V.

National Football League and  
NFL Properties, LLC,  
successor-in-interest to  
NFL Properties, Inc.,

Defendants.

THIS DOCUMENT RELATES TO:  
ALL ACTIONS

**NOTICE OF STEVEN F. MOLO, ALAN J. FANECAL, SEAN J. MOREY,  
DR. ROBERT A. STERN, DR. SAMUEL E. GANDY, AND REBECCA CARPENTER  
OF THEIR INTENT TO APPEAR AT NOVEMBER 19, 2014 FAIRNESS HEARING**

Steven F. Molo, Alan J. Faneca, Sean J. Morey, Dr. Robert A. Stern, Dr. Samuel E. Gandy, and Rebecca Carpenter submit this notice of their intent to appear, present argument, and testify at the Fairness Hearing currently scheduled for November 19, 2014.

On October 6, 2014, Sean Morey, Alan Faneca, Ben Hamilton, Robert Royal, Roderick “Rock” Cartwright, Jeff Rohrer, and Sean Considine (collectively, “Objectors”) submitted their formal objection to the proposed Settlement. Dkt. No. 6201. In support of their Objection, they have requested that the counsel, medical experts, and witnesses identified herein (collectively, “Speakers”) participate in support of their Objection at the Fairness Hearing. The testimony and



evidence that the Speakers request to present at the Fairness Hearing will show that the proposed Settlement should not be approved. The Speakers intend to testify on the following topics:

## **I. Arguments Opposing the Proposed Settlement**

### **Steven F. Molo**

Steven Molo is an attorney for the Objectors. At the fairness hearing, Mr. Molo intends to present arguments consistent with the filed Objection, Dkt. No. 6201, including, *inter alia*:

- ***The failure to compensate core class injuries.*** The Settlement releases all current and future claims of CTE – a disease Co-Lead Class Counsel has rightfully described as “the most serious and harmful disease that results from NFL and concussions.”<sup>1</sup> – without meaningful consideration.
- ***The failure to provide adequate representation to absent class members.*** The Settlement fails to compensate players who are living with CTE or who die with it after July 7, 2014 – notwithstanding that the family of a player who died with CTE before July 7, 2014 can receive \$4 million. Neither class representative alleges that he has CTE or is at increased risk of developing CTE. The Settlement also reduces a claimant’s award by 75% for a single instance of non-football-related traumatic brain injury (“TBI”) or stroke. Neither Mr. Turner nor Mr. Wooden claims an increased risk of non-football-related TBI or stroke. Moreover, the Settlement fails to award class members “Eligible Seasons” credit for time spent playing in NFL Europe or its predecessors. Neither Mr. Turner nor Mr. Wooden alleges that he played in NFL

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<sup>1</sup> Co-Lead Class Counsel previously explained on its website the prevalence of CTE among current and future NFL players:

Frequent brain trauma or multiple football concussions . . . has shown to cause serious mental health problems. ***Thousands of football players, many of whom are thought to have suffered more than one hundred mild traumatic brain injuries, are dealing with horrible and debilitating symptoms.***

Multiple medical studies have found direct correlation between football concussions and suffering from symptoms of chronic traumatic encephalopathy, also known as CTE. ***CTE is believed to be the most serious and harmful disease that results from NFL and concussions.*** CTE is a progressive degenerative disease that causes damage to the brain tissue and the accumulation of Tau Proteins.

*Up-To-Date Information on NFL Football Concussions*, Seeger Weiss LLP, (Sept. 9, 2014), <http://www.seegerweiss.com/football-concussions/#ixzz3CByVHxui> (emphasis added) (Dkt. No. 6201 2 n.1 & Ex. 1). Seeger Weiss removed that language from its website after oral argument in the Third Circuit on September 10, 2014, after the inadequate representation and failure to compensate CTE, as well as this language on their website, was raised.

Europe. These examples demonstrate that the Settlement includes conflicts between class members who will receive compensation and those who will not.

- ***The failure to provide notice consistent with the requirements of Rule 23 and due process.*** The notice contains overtly false and misleading statements. *See* Dkt. No. 6201, at 37-48. Further, Class Counsel has engaged in a propaganda campaign that has resulted in confusion as to what the Settlement covers and what it does not. *See id.* at 48-52.
- ***The failure to satisfy Rule 23's requirement that the Settlement be fair, adequate, and reasonable.*** The Settlement does not meet the requirements of Rule 23(e) because: (1) Class Counsel has failed to conduct any discovery in this case; (2) the NFL can withstand a far greater judgment than the Settlement; (3) class members' negative reaction to the Settlement; (4) Class Counsel understates the Plaintiffs' ability to establish liability; (5) the Settlement's discount relative to the class's best possible recovery is unreasonable and unjustified; (6) the procedural hurdles put into place in the Settlement will result in a lower value to the class than purported; and (7) conflicts are created by the exclusion of certain categories of players from compensation. *See Girsh v. Jepson*, 521 F.2d 153, 157 (3d Cir. 1975).

## II. Testimony Opposing the Proposed Settlement

Objectors have requested that the following witnesses provide testimony on their behalf.

The substance of that testimony is set forth below:

### **Dr. Robert A. Stern**

Dr. Stern is a Professor of Neurology, Neurosurgery, and Anatomy & Neurobiology at Boston University School of Medicine, where he is also the Director of Clinical Research at the BU CTE Center, and the Clinical Core Director of the BU Alzheimer's Disease Center. At the fairness hearing, Dr. Stern intends to testify on topics consistent with his declaration filed in support of the Objection, Dkt. No. 6201-16, including, *inter alia*:

- ***The impact of CTE.*** The primary clinical features of CTE include impaired cognition, mood, and behavior. Class members who suffer from many of the most disturbing and disabling symptoms of CTE, however, would not be compensated under the Settlement.
- ***Diagnosing CTE.*** Within the next five to ten years, there will likely be accurate, clinically accepted methods to diagnose CTE during life. These tests will likely include the ability to distinguish CTE from other brain diseases and conditions, including Alzheimer's disease.

- ***The proposed test battery.*** The proposed test battery in the baseline assessment program is inappropriate for identifying neurocognitive impairment in individuals with documented cognitive defects who should otherwise qualify for compensation.
- ***The criteria to define dementia.*** The metrics adopted in the Settlement to define dementia include a category of “Level 1.5” dementia that is too stringent and ultimately will result in a failure to identify significantly impaired individuals who should qualify under the Settlement.

**Dr. Samuel E. Gandy**

Dr. Gandy is a Professor of Alzheimer’s Disease Research, Professor of Neurology and Psychiatry, and Associate Director of the Alzheimer’s Disease Research Center at Mount Sinai hospital. He is also Chairman Emeritus of the National Medical and Scientific Advisory Council of the Alzheimer’s Association. At the fairness hearing, Dr. Gandy intends to testify on topics consistent with his declaration filed in support of the Objection, Dkt. No. 6232, including, *inter alia*:

- ***The clinical and pathological features of CTE.*** CTE is a neurodegenerative disease that is different from the neurodegenerative diseases of Alzheimer’s Disease, ALS, and Parkinson’s Disease. CTE includes serious and devastating mood and behavior disorders that present earlier in an affected person’s life than do the disorders associated with the other neurocognitive diseases.
- ***Dementia.*** Dementia is a descriptor of a person’s neurocognitive decline; each of Alzheimer’s, CTE, ALS, and Parkinson’s are neurodegenerative diseases that can lead to dementia; many individuals with CTE do not have dementia at the time of their death, but they will have lived with decades of disability due to the devastating mood and behavioral symptoms of CTE.
- ***Diagnosing CTE.*** Ongoing medical research is moving toward giving physicians the ability to detect and diagnose CTE in living people, including through the use of tracers that bind to tau proteins and are detectable using standard imaging technology; as research continues such tracers will become more sensitive, more accurate, and more reliable in diagnosing CTE during life.
- ***The Settlement’s Testing Protocol.*** The test protocol identified in the Settlement focuses only on cognition, and omits several of the recommended diagnostic protocols for individuals who may have CTE.

**Alan J. Faneca**

Alan Faneca is a former NFL player, and one of the Objectors. He played in the NFL for 13 seasons with the Pittsburgh Steelers, New York Jets, and Arizona Cardinals. At the fairness hearing, Mr. Faneca intends to testify about, *inter alia*:

- ***Personal experiences in the NFL.*** Mr. Faneca will address his personal experiences with concussions in the NFL, including the immediate and long-term effect of those concussions. He will also address the behavior and symptoms he witnessed in other players who suffered repeated head trauma from playing in the NFL as well as the effects of families and other people who are close to those players.
- ***Medical treatment in the NFL.*** Mr. Faneca will discuss the types of medical treatment the NFL provided for players during his NFL career, as well as the sideline pressure for players to return to the field despite sustaining serious head injuries, including the NFL's practice of administering Toradol to best maximize players' playing time.
- ***Failure to warn.*** Mr. Faneca will testify about the NFL's failure to warn players of the dangers of repeated concussions and head trauma.
- ***Post-NFL career.*** Mr. Faneca will address the effect concussions have had on his daily life since retirement, including short- and long-term memory loss, difficulty sleeping, and other symptoms.

**Sean J. Morey**

Sean Morey is a former NFL player, and one of the Objectors. He played in the NFL for nine seasons with the New England Patriots, the Philadelphia Eagles, the Pittsburgh Steelers, the Arizona Cardinals, and the Seattle Seahawks. He also played three seasons in NFL Europe. Mr. Morey served as a Collective Bargaining Representative in the NFL and on the Mackey-White Traumatic Brain Injury Committee, giving him critical insight into the inner-workings of the NFL's views on player safety and health. At the fairness hearing, Mr. Morey intends to testify about, *inter alia*:

- ***Personal experiences in the NFL and NFL Europe.*** Mr. Morey will discuss his personal experiences with concussions in the NFL, including the short- and long-term symptoms he sustained on account of those concussions. He will also address the behavior and symptoms he witnessed in other players who suffered repeated head

trauma from playing in the NFL as well as the effects of families and other people who are close to those players. He will further testify to how his experiences in the NFL compared to his experiences in NFL Europe.

- **NFL culture.** Mr. Morey will address the NFL's environment and culture, including its practice of administering Toradol to players and the inherent pressure to return to the field despite medical injuries.
- **Failure to warn.** Mr. Morey will testify about the NFL's failure to warn players of the dangers of repeated concussions or of head trauma generally.<sup>2</sup>

### **Rebecca Carpenter**

Rebecca Carpenter is the daughter of former NFL player Lewis Carpenter, who played in the NFL from 1953 to 1963 and coached in the NFL for 30 years after that. Lewis Carpenter died on November 14, 2010, and his autopsy revealed that he had been suffering from Stage 4 CTE. Ms. Carpenter is currently working on a documentary about the men with whom her father played football. At the fairness hearing, Ms. Carpenter intends to testify about, *inter alia*:

- **Her father's CTE.** Ms. Carpenter will address the behavioral and mood symptoms that manifested as a result of her father's CTE and that she observed firsthand, including how these effects of CTE impacted her, her sisters, and her mother.

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<sup>2</sup> Class Counsel have stated that Mr. Morey has "no standing" to participate in the fairness hearing because he has "opted out." Dkt. No. 6333, at 2. That is incorrect. Under the Settlement, opting out is not effective until final approval: "Prior to the Final Approval Date, any Retired NFL Football Player, Representative Claimant, or Derivative Claimant **may seek to revoke his or her Opt Out from the Settlement Class and thereby receive the benefits of this Class Action Settlement.**" Settlement § 14.2(c), Dkt. No. 6073-2, at 66 (emphasis added). Thus, until the Final Approval Date, no opt out decision takes effect. Because no opt out decision is effective until final approval, Mr. Morey has the right to participate in the fairness hearing. The rule that non-settling parties typically may not object to a Settlement (or participate in a fairness hearing) only applies where those parties are "not affected by such a settlement." *Eichenholtz v. Brennan*, 52 F.3d 478, 482 (3d Cir. 1995) (concluding that non-settling defendants had standing to object to a partial settlement because their rights to indemnification and contribution would be limited). Because Mr. Morey retains the legal right to revoke his opt out and participate as a member of the class, however, the Settlement plainly does affect him. *See Newberg on Class Actions* § 13:23 (5th ed.) ("While the black letter rule is that opt-outs have no standing to object because they are not impacted, if the settlement does, for some reason, impact the rights of opt-outs, that effect could provide standing to file an objection.").

- ***Other players.*** Ms. Carpenter will address her observations of many other players who played with and for her father and displayed the same symptoms that her father exhibited before his death and post-mortem diagnosis with CTE.

### III. Speakers' Contact Information

Below is the requested contact information for each of the identified speakers.

- **Steven F. Molo**  
MoloLamken LLP  
540 Madison Avenue  
New York, NY 10022  
(212) 607-8170
- **Dr. Robert A. Stern**  
Center for the Study of Traumatic Encephalopathy  
Alzheimer's Disease Center  
Boston University School of Medicine  
72 East Concord Street, B7380  
Boston, MA 02118-2526  
(617) 638-5678
- **Dr. Samuel E. Gandy**  
Annenberg Building Floor 14 Room 73  
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- **Alan J. Faneca**  
8112 Spring Hill Farm Drive  
McLean, VA 22102  
(504) 234-5967
- **Sean J. Morey**  
14 Riverside Drive  
Princeton, NJ 08540  
(781) 718-3058
- **Rebecca Carpenter**  
3611 Colonial Ave.  
Los Angeles, CA 90066  
(310) 702-2359

#### IV. Additional Testimony

In addition to these witnesses, Objectors request that the settling parties produce the following for testimony as adverse witnesses:

**Christopher A. Seeger.** Objectors wish to examine Mr. Seeger, Co-Lead Class Counsel, on topics including: the process for investigating the claims against the NFL Defendants at issue in this case; the good-faith basis for the allegations in *Turner v. National Football League*, Civ. A. No. 2:14-cv-29-AB, Dkt. No. 1 (E.D. Pa. Jan. 6, 2014); information exchanged with the NFL Defendants during the course of and after settlement negotiations; information related to why the Settlement does not include compensation for current and future cases of CTE even though, as noted above, Co-Lead Class Counsel has described CTE as “the most serious and harmful disease that results from NFL and concussions”; and the justification and basis for Class Counsel’s \$112.5 million attorneys’ fee award.

**Dr. Ira Casson.** Objectors wish to examine Dr. Casson, former chairman of the NFL’s MTBI Committee (which has been renamed the “Head, Neck, and Spine Medical Committee”), on topics including: how he obtained his appointment as head of the NFL’s MTBI Committee; his knowledge of any influence the NFL had over the MTBI Committee’s research and findings while he served on the Committee; the justification and basis for the MTBI Committee’s statements during his tenure on the Committee that there was no scientific evidence to determine whether repeat head impacts in professional football result in long-term brain injury; and when he determined that head trauma suffered while playing in the NFL can have long-term, negative effects on players’ brains.

**Dr. Elliott Pellman.** Objectors wish to examine Dr. Pellman, NFL Medical Director, on topics including: how he obtained his appointment as head of the NFL’s MTBI Committee; his knowledge of any influence the NFL had over the MTBI Committee’s research and findings

while he served on the Committee; the justification and basis for the MTBI Committee's statements during his tenure on the Committee that there was no scientific evidence to determine whether repeat head impacts in professional football result in long term brain injury; why he fired Dr. William Barr from Dr. Barr's position as a neuropsychologist for the New York Jets; and the circumstances surrounding his removal from the MTBI Committee.



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/s/ Steven F. Molo

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*Attorneys for Objectors*

I wish to appear and present argument at the November 19, 2014 fairness hearing in *In re NFL Players' Concussion Injury Litigation*, No. 12-md-2323, as set forth above.

Date: November 3, 2014

/s/ Steven F. Molo

Steven F. Molo  
540 Madison Avenue  
New York, NY 10022


Telephone: (212) 607-8170



JA4090

I wish to appear and provide testimony at the November 19, 2014 fairness hearing in *In re NFL Players' Concussion Injury Litigation*, No. 12-md-2323, as set forth above.

Date: October 30, 2014

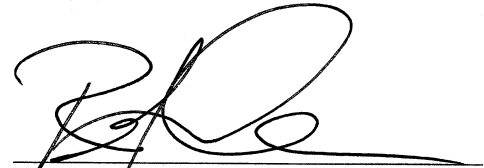
  
Alan Faneca  
8112 Spring Hill Farm Drive  
McLean, VA 22102

Telephone: (504) 234-5967



I wish to appear and provide testimony at the November 19, 2014 fairness hearing in *In re NFL Players' Concussion Injury Litigation*, No. 12-md-2323, as set forth above.

Date: Oct 30, 2014



Rebecca Carpenter

Address: 3611 COLONIAL AVE  
LOS ANGELES, CA

Telephone: (310) 702-2359 90066

**CERTIFICATE OF SERVICE**

I hereby certify that on November 3, 2014, I caused the foregoing Notice of Intent to Appear at November 19, 2014 Fairness Hearing with the United States District Court for the Eastern District of Pennsylvania via the Court's CM/ECF system, which will provide electronic notice to all counsel and parties.

/s/ Steven F. Molo



**UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF PENNSYLVANIA**

IN RE: NATIONAL FOOTBALL  
LEAGUE PLAYERS' CONCUSSION  
INJURY LITIGATION

No. 2:12-md-02323-AB  
MDL No. 2323

Kevin Turner and Shawn Wooden,  
*on behalf of themselves and  
others similarly situated,*

Civil Action No. 2:14-cv-00029-AB

Plaintiffs,

V.

National Football League and  
NFL Properties, LLC,  
successor-in-interest to  
NFL Properties, Inc.,

Defendants.

THIS DOCUMENT RELATES TO:  
ALL ACTIONS

**NOTICE OF STEVEN F. MOLO, ALAN J. FANECAL, SEAN J. MOREY,  
DR. ROBERT A. STERN, DR. SAMUEL E. GANDY, AND REBECCA CARPENTER  
OF THEIR INTENT TO APPEAR AT NOVEMBER 19, 2014 FAIRNESS HEARING**

Steven F. Molo, Alan J. Faneca, Sean J. Morey, Dr. Robert A. Stern, Dr. Samuel E. Gandy, and Rebecca Carpenter submit this notice of their intent to appear, present argument, and testify at the Fairness Hearing currently scheduled for November 19, 2014.

On October 6, 2014, Sean Morey, Alan Faneca, Ben Hamilton, Robert Royal, Roderick “Rock” Cartwright, Jeff Rohrer, and Sean Considine (collectively, “Objectors”) submitted their formal objection to the proposed Settlement. Dkt. No. 6201. In support of their Objection, they have requested that the counsel, medical experts, and witnesses identified herein (collectively, “Speakers”) participate in support of their Objection at the Fairness Hearing. The testimony and

evidence that the Speakers request to present at the Fairness Hearing will show that the proposed Settlement should not be approved. The Speakers intend to testify on the following topics:

## I. Arguments Opposing the Proposed Settlement

### Steven F. Molo

Steven Molo is an attorney for the Objectors. At the fairness hearing, Mr. Molo intends to present arguments consistent with the filed Objection, Dkt. No. 6201, including, *inter alia*:

- ***The failure to compensate core class injuries.*** The Settlement releases all current and future claims of CTE – a disease Co-Lead Class Counsel has rightfully described as “the most serious and harmful disease that results from NFL and concussions.”<sup>1</sup> – without meaningful consideration.
- ***The failure to provide adequate representation to absent class members.*** The Settlement fails to compensate players who are living with CTE or who die with it after July 7, 2014 – notwithstanding that the family of a player who died with CTE before July 7, 2014 can receive \$4 million. Neither class representative alleges that he has CTE or is at increased risk of developing CTE. The Settlement also reduces a claimant’s award by 75% for a single instance of non-football-related traumatic brain injury (“TBI”) or stroke. Neither Mr. Turner nor Mr. Wooden claims an increased risk of non-football-related TBI or stroke. Moreover, the Settlement fails to award class members “Eligible Seasons” credit for time spent playing in NFL Europe or its predecessors. Neither Mr. Turner nor Mr. Wooden alleges that he played in NFL

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<sup>1</sup> Co-Lead Class Counsel previously explained on its website the prevalence of CTE among current and future NFL players:

Frequent brain trauma or multiple football concussions . . . has shown to cause serious mental health problems. ***Thousands of football players, many of whom are thought to have suffered more than one hundred mild traumatic brain injuries, are dealing with horrible and debilitating symptoms.***

Multiple medical studies have found direct correlation between football concussions and suffering from symptoms of chronic traumatic encephalopathy, also known as CTE. ***CTE is believed to be the most serious and harmful disease that results from NFL and concussions.*** CTE is a progressive degenerative disease that causes damage to the brain tissue and the accumulation of Tau Proteins.

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Europe. These examples demonstrate that the Settlement includes conflicts between class members who will receive compensation and those who will not.

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## II. Testimony Opposing the Proposed Settlement

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- ***Diagnosing CTE.*** Within the next five to ten years, there will likely be accurate, clinically accepted methods to diagnose CTE during life. These tests will likely include the ability to distinguish CTE from other brain diseases and conditions, including Alzheimer's disease.

- ***The clinical and pathological features of CTE.*** CTE is a neurodegenerative disease that is different from the neurodegenerative diseases of Alzheimer's Disease, ALS, and Parkinson's Disease. CTE includes serious and devastating mood and behavior disorders that present earlier in an affected person's life than do the disorders associated with the other neurocognitive diseases.
- ***Dementia.*** Dementia is a descriptor of a person's neurocognitive decline; each of Alzheimer's, CTE, ALS, and Parkinson's are neurodegenerative diseases that can lead to dementia; many individuals with CTE do not have dementia at the time of their death, but they will have lived with decades of disability due to the devastating mood and behavioral symptoms of CTE.
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William T. Hangley  
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*Attorneys for Objectors*



I wish to appear and provide testimony at the November 19, 2014 fairness hearing in *In re NFL Players' Concussion Injury Litigation*, No. 12-md-2323, as set forth above.

Date: October 30, 2014

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I wish to appear and provide testimony at the November 19, 2014 fairness hearing in *In re NFL Players' Concussion Injury Litigation*, No. 12-md-2323, as set forth above.

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# SAM GANDY

## MD PhD

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I wish to appear and provide testimony at the November 19, 2014 fairness hearing in *In re NFL Players' Concussion Injury Litigation*, No. 12-md-2323, as set forth above.

Date: October 30, 2014


  
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I wish to appear and provide testimony at the November 19, 2014 fairness hearing in *In re NFL Players' Concussion Injury Litigation*, No. 12-md-2323, as set forth above.

Date: Oct. 30, 2014

  
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**CERTIFICATE OF SERVICE**

I hereby certify that on November 3, 2014, I caused the foregoing Notice of Intent to Appear at November 19, 2014 Fairness Hearing with the United States District Court for the Eastern District of Pennsylvania via the Court's CM/ECF system, which will provide electronic notice to all counsel and parties.

/s/ Steven F. Molo

**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF PENNSYLVANIA**

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IN RE: NATIONAL FOOTBALL  
LEAGUE PLAYERS' CONCUSSION  
INJURY LITIGATION

---

No. 2:12-md-02323-AB

MDL No. 2323

**Hon. Anita B. Brody**

THIS DOCUMENT RELATES TO:  
ALL ACTIONS

**NOTICE**

In light of the potential for duplicative argument by objectors, and in order to promote an orderly and efficient consideration of the issues, I have asked Steven Molo of MoloLamken LLP and William Hangle of Hangle Aronchick Segal Pudlin & Schiller to coordinate the arguments of the objectors who wish to be heard at the November 19, 2014 Fairness Hearing. Anyone, however, who has given timely notice of intent to appear at the Fairness Hearing and still wishes to speak will have the opportunity to be heard.

**s/Anita B. Brody**

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ANITA B. BRODY, J.

Copies **VIA ECF** on \_\_\_\_\_ to:

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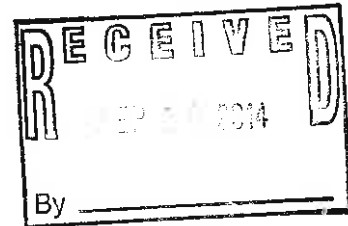
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September 3, 2014

Mr. Michael E. Kunz  
Clerk of the District Court/*NFL Concussion Settlement*  
U.S. District Court for the Eastern District of Pennsylvania  
United States Courthouse  
601 Market Street, Room 2609  
Philadelphia, PA 19106-1797



**RE: No. 2:12-MD-2323-AB**  
**IN RE: National Football Players' Concussion Injury Litigation**  
**(Anderson Objectors)**

Dear Mr. Kunz:

Enclosed please find *Objection to June 25, 2014, Class Action Settlement Agreement by Ramon Armstrong, Nathaniel Newton, Jr., Larry Brown, Kenneth Davis, Michael McGruder, Clifton L. Odom & George Teague* for filing in the above-referenced MDL.

If you have any questions or need any additional information, please do not hesitate to contact me.

Sincerely,

Mitchell A. Toups

/jg  
Enclosures

**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF PENNSYLVANIA**

**IN RE: NATIONAL FOOTBALL  
LEAGUE PLAYERS' CONCUSSION  
LITIGATION**

~~~~~

No. 12-md-2323 (AB)

MDL No. 2323

**THIS DOCUMENT RELATES TO:
ALL ACTIONS**

**OBJECTION TO JUNE 25, 2014 CLASS ACTION SETTLEMENT AGREEMENT BY
RAMON ARMSTRONG, NATHANIEL NEWTON, JR., LARRY BROWN, KENNETH
DAVIS, MICHAEL MCGRUDER, CLIFTON L. ODOM & GEORGE TEAGUE**

TO THE HONORABLE UNITED STATES DISTRICT COURT:

Settlement Class Members Ramon Armstrong, Nathaniel Newton, Jr., Larry Brown, Kenneth Davis, Michael McGruder, Clifton L. Odom, and George Teague (collectively, the “Armstrong Objectors”) file this Objection to the revised settlement in the Class Action Settlement Agreement as of June 25, 2014 (Doc. #6087) (the “RSA”), and respectfully show the following:

THE ARMSTRONG OBJECTORS

The Armstrong Objectors are seven retired National Football League (“NFL”) players, each of whom had a distinguished playing career. The Armstrong Objectors collectively played an average of nine seasons with eleven different teams. They include offensive and defensive linemen, a running back, a linebacker, and defensive backs. The Armstrong Objectors include Pro Bowl participants, All-Pros, All-Americans, and a Super Bowl MVP. The oldest Armstrong Objector began his NFL career in 1960. The youngest Armstrong Objector retired in 2003. Two played on three Super Bowl championship teams each; two others in five Super Bowls.

Ramon Armstrong played one season as a defensive tackle with the Oakland Raiders. Mr. Armstrong began his professional football career after playing for Texas Christian University. Mr. Armstrong retired from the old AFL after the 1960 season.

Nathaniel Newton, Jr. played fourteen seasons as an offensive lineman with the Dallas Cowboys and Carolina Panthers. Prior to his NFL career, he played two years for the Tampa Bay Bandits in the United States Football League. Mr. Newton was a six-time Pro Bowl selection, twice named All-Pro, and played on three Super Bowl Champion teams with the Dallas Cowboys (XXVII, XXVIII, and XXX). He also was named to the USFL All-Time Team. Mr. Newton began his NFL professional football career in 1986 after playing for Florida A&M University — where he was first team All-MEAC as a senior. Mr. Newton retired from the NFL after the 1999 season. He is a radio and television broadcaster in Dallas, Texas.

Larry Brown played eight seasons as a defensive back with the Dallas Cowboys and Oakland Raiders. He played on three Super Bowl Champion teams with the Dallas Cowboys (XXVII, XXVIII, and XXX), and was named MVP of Super Bowl XXX. He was also named to the NFL all-rookie team. Mr. Brown began his professional football career in 1991 after playing for both Los Angeles Southwest College and Texas Christian University. After his senior season at TCU, he was invited to play in the Blue–Gray Football Classic where he was named MVP. Mr. Brown retired from the NFL after the 1998 season. He is a cohost of the Dallas Cowboys Radio Network Pregame and Postgame Shows on the Dallas Cowboys Radio Network.

Kenneth Davis played nine seasons as a running back with the Green Bay Packers and Buffalo Bills. He played in four consecutive Super Bowls (XXV, XXVI, XXVII and XXVIII) with the Buffalo Bills. Mr. Davis began his professional football career in 1986 after playing for Texas Christian University — where he was first team All-American and had the fifth most votes

Clifton L. Odom played thirteen seasons as a linebacker with the Cleveland Browns, Baltimore and Indianapolis Colts, and Miami Dolphins. Mr. Odom began his professional football career in 1980 after playing for the University of Texas Christian-Arlington. Mr. Odom retired from the NFL after the 1993 season.

3

development programs that involves many former University of Alabama football players. Mr. Teague retired from the NFL after the 2001 season. He is the Director of Athletics and Physical Education and Head Football Coach for the Shelton School in Dallas, Texas.

Since retiring from the NFL, each of the Armstrong Objectors has experienced one or more of a wide range of symptoms linked to repetitive mild traumatic brain injury (“MTBI”), including a sensitivity to noise, visuospatial issues, visual impairment, chronic pain, executive function deficit, episodic depression, mood and personality changes, chronic headaches, dysnomia, a decreased ability to multi-task, peripheral nerve dysfunction (numbness, burning, and/or tingling), cervical spinal disorders, sleep dysfunction, attention and concentration deficits, short- and long-term memory deficits, and somatic disorders. Some of the Armstrong Objectors also have experienced a decreased ability to interpret, regulate, express, or control complex emotions — all of which are associated with chronic traumatic encephalopathy (“CTE”) and may broaden or intensify.

Although the Armstrong Objectors’ injury claims would be released by the RSA, none would qualify for any relief under the RSA beyond participation in the proposed Baseline Assessment Program (“BAP”). Even then, the BAP — which measures cognitive deficits such as memory impairment and loss of attention — does not screen for many of their neurobehavioral conditions or neuropsychiatric presentations.

ARMSTRONG OBJECTORS’ OBJECTIONS TO THE RSA

The Armstrong Objectors object to the RSA because of the following deficiencies, all of which are curable by rejecting it in its current form and amending it.

1. Maximum monetary awards are insufficient. The Armstrong Objectors object to the RSA because individual awards for qualifying players and/or their families remain capped

at the following maximum amounts: (i) Dementia (\$1.5 – \$3 million), (ii) Alzheimer’s and Parkinson’s (\$3.5 million), (iii) ALS (\$5 million), and (iv) Death with CTE (\$4 million). *See* Monetary Award Grid, Exhibit B-3 to the RSA. These amounts are insufficient to compensate the injured players and/or their families — especially once they are present value affected since they will not be paid immediately. The maximum individual awards also are subject to further reductions (*see* below).

Perhaps the best indicator of the anticipated average payout per claimant is Co-Lead Class Counsel’s analysis. Counsel believes that even though the RSA is uncapped, it is worth \$675 million to the former players. Co-Lead Class Counsel also estimates that between 3,000 and 5,000 former players will be compensated. Performing simple long division confirms that the average anticipated monetary award per player is between \$135,000 and \$225,000 — before attorneys’ fees and expenses are deducted. These amounts are not even close to the maximum awards in the Monetary Award Grid. Moreover, it is not even close to the roughly \$10 million in total lifetime costs — including lost productivity and medical and custodial care — that University of Toronto Professor of Neurosurgery Charles Tator estimates for each case of repetitive traumatic brain injury. *See* <http://www.medscape.com/viewarticle/810904#2> (last visited August 20, 2014). *See also* CHARLES H. TATOR, CATASTROPHIC INJURIES IN SPORTS AND RECREATION: CAUSES AND PREVENTION: A CANADIAN STUDY (2d ed. 2008) (calculating the average cost of a non-fatal catastrophic injury at about \$7.5 million (Canadian dollars, normalized to 2006) in lost earnings, lifetime care, and rehabilitation services).

The Armstrong Objectors, therefore, propose the RSA be revised to increase the maximum awards, which could be funded by, *inter alia*, (i) eliminating and utilizing some of the \$112.5 million allocated to Co-Lead Class Counsel as additional attorneys’ fees (*see* below), (ii)

eliminating the 5% “set-aside (*see* below), (iii) eliminating and utilizing the \$10 million allocated to the up-front *cy pres* Education Fund (*see* below), and/or (iv) increasing the cost of living percentage to at least 3-4% or peg it to a consumer price index.

2. Reductions to maximum monetary awards. The Armstrong Objectors object to the RSA because all of the above maximum monetary awards are subject to reductions — often, significant reductions — based on offsets for age and career length. *See* RSA §6.7, Exhibit B-3. Former players with fewer than five years of NFL experience will see their awards reduced, some by as much as 95 percent. *Id.* The same holds true for retirees over 45 — the older a player is when diagnosed with brain damage, the less money he will receive. *Id.*

For example, assume a player died before July 7, 2014, the date the RSA was preliminarily approved, and there is a post-mortem CTE finding. If the player was Junior Seau, his family would receive \$4 million according to the Monetary Award Grid (Exhibit B-3 to the RSA). But, under the Monetary Award Grid age-based reductions, the family of Dave Duerson, who also committed suicide, would receive only \$2.3 million. Both are subject to further reductions for attorneys' fees (one-third is the typical arrangement) and expenses. More important is that the family members of a few deceased players will receive some of the largest awards as compared to living players who desperately need medical care, but will receive very small awards, if any.

Attempting to calculate the estimated award a typical retired NFL player facing problems resulting from concussions would receive is difficult. By all counts, there will be many players facing dementia after the age of 60. The Monetary Award Grid provides a payment of \$580,000 to a 60-year-old NFL veteran diagnosed with a moderate form of dementia at age 60 or later. After paying attorneys' fees and expenses, the player would collect something \$375,000. The Armstrong Objectors, therefore, propose the RSA be revised to eliminate the age and career length

reductions. There is no correlation between age and career length, on the one hand, and developing dementia, on the other hand. A single severe concussion in the first game of a player's career could cause a player to suffer dementia.

The RSA also reduces monetary awards by 75% for any former player who has suffered a single non-football related traumatic brain injury or stroke (*id.*, §6.7 (b)(iii)) — even though (i) there is no scientific reason to presume that a single non-football brain injury accounts for 75% of a player's afflictions, and (ii) NFL team doctors spent at least two decades increasing former players' risk of stroke (and likely, brain injury) by liberally administering the pain-killing, blood-thinning drug Toradol against Food and Drug Administration warning label guidelines.

The Armstrong Objectors also propose the Revised Settlement be revised to eliminate this artificial monetary award reduction.

3. Death with CTE. The Armstrong Objectors object to the RSA because a “Death with CTE” qualifying diagnosis requires retirees to have died and been diagnosed with CTE prior to July 7, 2014. RSA, §6.3(f) (“A Qualifying Diagnosis of Death with CTE shall be made only for Retired NFL Football Players who died prior to the date of the Preliminary Approval and Class Certification Order, through a post-mortem diagnosis by a board certified neuropathologist of CTE.”). Thus, if an NFL retiree dies after July 7, 2014, and regardless of whether the player commits suicide and it is ultimately determined he suffered from CTE, his family will not qualify for an award. This is absurd. There should not be any deadlines based on when death occurred.

This provision also ignores that CTE — a condition found in contact sport athletes, military personnel exposed to explosive blasts and others subjected to repetitive concussive and sub-concussive head trauma, marked by widespread, irreversible accumulation of destructive tau protein in the brain — is at the heart of this litigation. What's more, the RSA does not assign

similar cutoff dates to former players diagnosed with ALS, Alzheimer's or Parkinson's — even though a 2013 National Institute for Occupational Safety and Health study of nearly 3,500 NFL retirees who played at least five seasons between 1959 and 1988 recorded just 17 combined cases of these diseases¹ while, in a 2010 study, 33 of the 34 studied deceased NFL players were diagnosed with CTE.

CTE is the disease that made football brain damage a national issue and a public health concern. Without it, neither this litigation, nor the RSA likely would exist. Yet the RSA forecloses every NFL retiree who has yet to die and be diagnosed with CTE from receiving a “Death by CTE” award as if there will never be another case—which cannot be true.

The Armstrong Objectors further object to the RSA because the qualifying “Death with CTE” diagnosis is too limited. The following symptoms are associated with both brain damage and CTE: sensitivity to noise, visual impairment, chronic pain, chronic headaches, numbness, burning, tingling, incessant ringing in the ears, attention disorders, trouble sleeping, aggression, agitation, impulsivity, suicidal thoughts and difficulty regulating, expressing and controlling complex emotions. None of these symptoms, however, are addressed by the RSA, nor is there any compensation allowed for these conditions.

The CTE restrictions under the RSA are designed to save the NFL a substantial amount of money on the very disease giving rise to the litigation. The Monetary Award Grid reduces the size of individual Death with CTE payouts, while the cutoff date limits the total number. In disallowing future award changes regardless of medical advances — in essence, the potential creation of a

¹ On the other hand, while medical experts suspect that the other neurodegenerative diseases compensated by the RSA — ALS, Parkinson's, Alzheimer's and dementia — may be triggered and/or accelerated by years of bashing football helmets, these illnesses also occur in people who have not experienced brain trauma. The link to football is less clear.

“Life with CTE” qualifying diagnosis — the RSA shrinks the eligible player pool even further. By exclusively focusing on cognitive impairment, the same BAP program that is supposed to assist CTE sufferers by giving them a general dementia diagnosis excludes retirees suffering from mood, behavioral and other non-cognitive symptoms (such as chronic migraines) — all the while saving the NFL money by ensuring that living ex-players with CTE who qualify for a dementia award are more likely to be older and, therefore, subject to a greater payout reduction according to the Monetary Award Grid.

The Armstrong Objectors, therefore, propose the RSA be revised to delete the date parameters of the “Death with CTE” qualifying diagnosis and expand the list of CTE symptoms that qualify for compensation and lift the restriction on the date of death as well as increase the size of the awards for death with CTE.

4. Baseline Assessment Program (“BAP”). The Armstrong Objectors object to the RSA because of the length of the program and the tight deadlines under which retired NFL players with cognitive issues must operate. *See* RSA, Art. V. Retired players must register for the BAP within 180 days after notice is posted on a special settlement website. RSA, §4.2(c). Otherwise, they will be deemed ineligible for baseline tests and monetary awards. *Id.* Thereafter, players older than age 43 must take their baseline exams within two years after the BAP is launched, while younger players must take the exams before their 45th birthday or within ten years of the start of the program. RSA, §5.3. After 10 years, no baseline exams will be conducted (RSA, §5.5), and without a baseline exam, it is nearly impossible to qualify for a monetary award under the RSA.

The BAP also screens for cognitive deficits and signs of dementia, but only offers monetary awards for specific neurodegenerative diseases — leaving players who suffer from memory loss, headaches, chronic pain, depression, impulsivity, diminished executive function, speech

impairment, attention deficits and other ailments linked to repetitive brain injury, but do not rise to the level of Parkinson's or ALS, receiving nothing more than counseling and prescription drug coverage, even though their conditions can drastically affect their quality of life and ability to work.

BAP program neuropsychologists also cannot make qualifying diagnoses of Alzheimer's, Parkinson's or ALS. Instead, retirees must visit a settlement-approved doctor and pay for their own medical testing and related travel expenses.

The Armstrong Objectors, therefore, propose the RSA be revised to extend the deadlines for registering for, and taking, the baseline exams by two years, and extend the life of the BAP beyond ten years to possibly twenty years, which could be funded by, *inter alia*, (i) eliminating and utilizing some of the \$112.5 million allocated to Co-Lead Class Counsel as additional attorneys' fees (*see below*), (ii) eliminating the 5% "set-aside (*see below*), (iii) eliminating and utilizing the \$10 million allocated to the up-front *cy pres* Education Fund (*see below*), and/or (iv) additional funds from the NFL.

5. Amount of compensation paid depends on fair providers. The Armstrong Objectors object to the RSA because disability can only be determined by neuropsychologists who are pre-selected for the BAP. *See* RSA, Article V. The neuropsychologists who register to be part of the BAP are likely to be far more conservative in "calling" impairment than a neuropsychologist chosen by a player. Requiring neuropsychologists to pre-register for the BAP also will substantially reduce the number of treating doctors involved. Treating physicians rarely seek this kind of work. The physician selection criteria also will dissuade most busy treating doctors from participating. The doctors who typically work for insurance defense law firms are more likely to

register. And, for a biased doctor, the malingering tests specifically authorized under the RSA are a huge weapon to be used against the players.

The RSA also should have forbidden the use of the “Fake Bad Scale,” which can be included in an MMPI assessment, although it has been rejected by most courts as unreliable. The RSA will only be fair if the majority of doctors registering for the BAP believe mild brain injury deficits equal the defined monetary award categories. Yet, the manifestations of early onset of *dementia pugilistica* in football are more behavioral than cognitive.

The Armstrong Objectors, therefore, propose the RSA be revised to allow the players to select and utilize their treating physicians, without penalty, as long as the treating physicians are Board Certified in neurology, and specifically forbid the use of the “Fake Bad Scale” in MMPI assessments.

6. Neuropsychological opinion required. The Armstrong Objectors object to the RSA because determination of the cognitive impairment groups is based entirely on the neuropsychological determination of cognitive impairment. Type I CTE – which impacts younger players – is almost entirely a behavioral problem, not a cognitive problem. Any cognitive changes will be the type not susceptible to measurement in someone under age 60. While some behavioral problems may have cognitive manifestations, they are not likely to manifest themselves in examinations in non-stressful environments, like a neuropsychologist’s office. The Armstrong Objectors, therefore, propose the RSA be revised to allow for compensation for these behavioral problems and their own physicians to diagnose same.

7. Unlimited appeals. The Armstrong Objectors object to the RSA because the NFL may appeal as many monetary awards as it chooses — for free. In the initial, rejected version of the settlement, the NFL was limited to ten appeals per year. However, under the RSA, and

regardless of a retired player's mental state or financial need, the NFL can delay payment by simply appealing an unlimited number of claims. RSA, § 9.6(b). What's more, while there is no charge for the NFL to appeal a monetary award, players must pay a \$1000 fee to file an appeal. RSA, § 9.6(a). It also is unfair to place retired players with cognitive issues, such as memory problems, issues with punctuality, difficulty keeping appointments and staying on top of paperwork, in a position of having to deal with the prospect of an unlimited number of appeals.

The RSA also requires an appealing player to prove his appeal with "clear and convincing evidence." RSA, § 9.8. Yet, an appellant will have only five pages of argument to carry his burden of proof. RSA, § 9.7(a). The "clear and convincing" standard is substantially more difficult to prove than the "proximate cause" standard — the normal burden of proof in a civil lawsuit at the courthouse—which only requires proof of probability of slightly greater than 50%. Having to prove a significant behavioral CTE manifestation, for example, in by "clear and convincing" evidence in only five pages will make a successful appeal extremely rare.

The Armstrong Objectors, therefore, propose the RSA be revised to (i) eliminate the NFL's right to appeal a player's monetary award (or, in the alternative, limit the number of appeals the NFL may file to ten per year, as set forth in the initial version of the settlement), (ii) eliminate the \$1000 fee charged to players for filing an appeal, and (iii) change the "clear and convincing" burden of proof standard to the "proximate cause" standard.

8. Amount of the RSA is insufficient. The Armstrong Objectors object to the RSA because of the insertion intermediate monetary award caps and reductions. According to Co-Lead Class Counsel, the initial, rejected settlement had an ultimate capped value to the players of \$675 million — which was based on analyses allegedly performed by medical experts, actuaries and economists predicting (i) the number of former NFL players who are brain damaged, (ii) the

ultimate nature and extent of their brain damage, and (c) the money necessary to compensate such brain damage under the initial, rejected settlement. The NFL and Class Counsel, however, did not share their analyses with the Court, and the Court, in part, rejected the initial settlement as insufficient because of the ultimate cap.

Even though the cap was eliminated in the RSA, the NFL and Co-Lead Class Counsel confidently state that \$675 million will still be enough to fund the deal. The only way this could be true is by implementing intermediate monetary award caps and reductions to keep the ultimate — theoretically uncapped — amount of the RSA in check. If \$675 million was not enough the first time, it should not be enough now. The Armstrong Objectors, therefore, propose the RSA be revised to require the NFL to increase the settlement fund.

9. Underlying analyses and supporting documents and information. The Armstrong Objectors object to the RSA because the NFL and Co-Lead Class Counsel have not disclosed the underlying analyses, documents and information on which the RSA is predicated. Brain damage from playing football is a public health issue and a public policy issue, both from the standpoint of the safety and well-being of our children and loved ones, and the shared medical costs (private insurance and/or Medicare) of treating the afflicted. If the NFL has information about the incidence and prevalence of the cognitive costs of playing football, such information should be shared with the public. The public has a need and a right to know just as in any other case involving a public harm.

The RSA also will foreclose any future discovery on the issue from the NFL, which means the public will never know what the NFL knew about brain damage and when the NFL knew it. According to Alan C. Milstein, a Temple University School of Law professor who specializes in

bioethics and clinical trials litigation, disclosure of the underlying analyses, documents and information is not about the NFL, but about:

[T]he NCAA and high school football and junior high football and peewee football. And about parents understanding whether or not they should let their kid play football. We will never know that critical information about the seriousness of concussions because the NFL is buying peace and they are also buying silence. That is what is really wrong with this situation.

Alan C. Milstein, *Brutality's the Winner in the NFL Settlement*, THE NAT'L LAW J. (September 9, 2013). The Armstrong Objectors, therefore, propose the Revised Settlement be revised to require the NFL and Co-Lead Class Counsel to disclose the analyses, documents and information underpinning the RSA or give counsel herein at least 180 days to conduct discovery against the NFL and present the evidence to the Court. There is no reason to rush to a settlement when 20,000 class members' medical future is at stake for the next 65 years.

10. No consideration of scientific advances. The Armstrong Objectors object to the RSA because although it is designed to last for 65 years, it does not adequately allow for advances in neuroscience. Many scientists believe there will be a way to detect CTE in the living within the next decade. Scientists in Chicago are experimenting with a screening test that measures vision, eye movement and optic nerve irregularities. Boston University CTE researcher Robert Stern and his team of scientists are conducting a comprehensive study of 100 NFL retirees with the goal of identifying CTE biomarkers. Other researchers are developing and refining scanning technology to see tau deposits in the brain. In July 2014, Massachusetts General Hospital scientists attending the Alzheimer's Association International Conference in Copenhagen announced a new type of brain imaging that can show tau tangles in living people for the first time. The RSA, however, barely considers future scientific advances.

Although 65 years in length, the RSA specifically prohibits the NFL and Co-Lead Class Counsel from meeting more than once every ten years to discuss possible changes to the qualifying diagnoses and protocols for making them, with actual modifications requiring approval from both sides. RSA, §6.6(a). In other words, if the NFL unilaterally does not want to accept a new method of detecting CTE, for example, it will not be required to do so. Nor is there any mechanism in the RSA to force the NFL to do so. Even then, any such scientific advances incorporated into the RSA going forward will not change the Monetary Award Grid.

The Armstrong Objectors, therefore, propose the RSA be revised to provide for a more frequent and democratic mechanism (perhaps a third-party arbitrator to break any ties) for reviewing, identifying, incorporating, and implementing qualifying diagnoses and the protocols for making them based on scientific advances over the term of the RSA.

11. The additional attorneys' fees and expenses are excessive. The Armstrong Objectors object to the \$112.5 million of additional attorneys' fees and expenses payable to Co-Lead Class Counsel and other lawyers in leadership positions (RSA, Article XXI) — despite conducting no discovery against the NFL. Without discovery, Co-Lead Class Counsel was severely hamstrung in their ability to thoroughly and accurately evaluate the case and the NFL's settlement offers. Based on the discovery taken to date — *i.e.*, none — how can Counsel for the NFL and Co-Lead Class Counsel, all of whom are officers of the Court, possibly represent in good faith to the Court that the RSA is fair and reasonable? How could \$112.5 million of additional attorneys' fees and expenses have been earned?

What's more, the \$112.5 million of attorneys' fees and expenses are in addition to the contingent attorneys' fees and expenses payable to the lawyers by the players under their individual fee agreements; the \$112.5 million of attorneys' fees and expenses are a "double dip"

and a windfall. Many of the players who have filed Short Form Complaints are represented by attorneys who are requesting, or will request, part of the \$112.5 million of attorneys' fees. It is unfair for these class members to pay attorneys' fees twice, and any class counsel who is awarded attorneys' fees should not be allowed to also recover attorneys' fees under the individual contracts with their clients. Further, their clients may not be paid for years under the RSA even though the NFL will pay the \$112.5 million of additional fees and expenses into a fund within sixty days after the effective date of the RSA. *Id.*, §21.2. Not only should these additional attorneys' fees be reduced, but no double dipping should be allowed and any lawyer, including Co-Lead Class Counsel, receiving attorneys' fees should be obligated to continue to help the players secure relief under the RSA, or a committee should be established to help class members with the committee members paid for their time on a reasonable hourly basis.

The \$112.5 million of additional fees and expenses also is excessive when compared on an "apples to apples" basis to the Co-Lead Class Counsel's projected value of the monetary awards under the RSA (*i.e.*, \$675 million). Assuming the entire \$675 million is paid to the former players in equal annual payments over 65 years, the present value of the RSA monetary awards computed using a discount rate of 3.2 % (the August 18, 2014 30-year Treasury bond rate) is approximately \$292 million. The present value of the additional attorneys' fees and expenses (*i.e.*, \$112.5 million) is 38.52% of the present value of the RSA — which is an excessive percentage in and of itself, but even more offensive since no discovery was taken and the fact that all plaintiffs' counsel will be paid under the individual contracts with their clients.

Also buried deep in the RSA is a vague provision calling for a potential five percent (5%) "set-aside" on every monetary award that Co-Lead Class Counsel may petition the Court to award

— whatever that means.

The Armstrong Objectors, therefore, propose the RSA be further revised to reduce the \$112.5 million award of additional attorneys' fees and expenses and eliminate the 5% set aside completely. All lawyers should receive their fees under their individual client contracts over time as their clients actually receive their RSA monetary awards, unless they are recovering class fees, in which case they should not be allowed to double dip. This will ensure that the lawyers will continue to work in the best interests of their clients to make sure their clients are appropriately compensated from the RSA. The up-front payment of \$112.5 million of additional attorneys' fees and expenses will only incentivize counsel to "take their money and run" to the next big case, leaving their clients to fend for themselves against the NFL when the clients need their lawyers the most. A portion of the \$112.5 million of additional attorneys' fees and expenses and eliminated 5% set aside could then fund additional player benefits (as set forth above).

12. **The Education Fund should be eliminated.** The Armstrong Objectors object to the \$10 million Education Fund in the RSA. *Id.*, Article XII; §2.1(hh);(ii). It is ill-defined on many levels. The scope, nature, extent, protocols, education programs, recipients, management and administration of the Education Fund will be determined at a later date. *Id.* To the extent the Education Fund will be used for “the education of Retired NFL Football Players regarding the NFL CBA Medical and Disability Benefits programs and other educational initiatives benefitting Retired NFL Football Players” (RSA, §12.1), the Parties should not receive credit because this education is already being (or should be) provided by the NFL. To the extent any tangible benefits will be provided by the Education Fund, they will further be reduced because the “costs and expenses to administer the Education Fund will be paid out of the [\$10 million].” RSA, §12.2.

Most important, the Armstrong Objectors object to the Education Fund because it is an improper initial *cy pres* fund² that diverts \$10 million of settlement funds away from the players to unnamed recipients for undefined activities. Such funds should be utilized for the benefit of the players (as described above), rather than directed from the get go to unidentified third parties who have no claims in this litigation.

In a class action settlement, “[t]he *cy pres* doctrine allows a court to distribute unclaimed or non-distributable portions of a class action settlement fund to the ‘next best’ class of beneficiaries.” *Nachshin v. AOL, LLC*, 663 F.3d 1034, 1036 (9th Cir. 2011) (citation omitted). *Cy pres* distributions must account for the nature of the plaintiffs’ lawsuit, the objectives of the underlying statutes, and the interests of the silent class members, including their geographic diversity. *Id.*

Direct distributions to settlement class members are preferred over *cy pres* distributions. *In re Baby Products Antitrust Litig.*, 708 F.3d 163, 173 (3d Cir. 2013). The private causes of action aggregated in this proceeding—as in other class actions—were initiated to allow plaintiffs to recover compensatory damages for their injuries. *Cy pres* distributions imperfectly serve that purpose by substituting for such direct compensation an indirect benefit that is, at best, attenuated and, at worse, illusory. *Id.* (citing *Mirfasihi v. Fleet Mortg. Corp.*, 356 F.3d 781, 784–85 (7th Cir. 2004)). *Cy pres* distributions also present a potential conflict of interest between class counsel and

² The term “*cy pres*” is derived from the Norman French expression *cy pres comme possible*, which means “as near as possible.” *Democratic Cent. Comm. v. Washington Metro. Area Transit Comm’n*, 84 F.3d 451, 455 n.1 (D.C. Cir. 1996). The *cy pres* doctrine originated in trusts-and-estates law as a rule of construction used to preserve testamentary charitable gifts that otherwise would fail. “When it becomes impossible to carry out the charitable gift as the testator intended, the doctrine allows the ‘next best’ use of the funds to satisfy the testator’s intent ‘as near as possible.’” *Id.* (quoting Natalie A. DeJarlais, Note, *The Consumer Trust Fund: A Cy Pres Solution to Undistributed Funds in Consumer Class Actions*, 38 HASTINGS L.J. 729, 730 (1987)).

their clients because including a *cy pres* distribution may increase a settlement fund, and with it, attorneys' fees, without increasing the direct benefit to the class. *In re Baby Products Antitrust Litig.*, 708 F.3d at 173. Where a court fears counsel is conflicted, it should subject the settlement to increased scrutiny. *Id.*

That said, *cy pres* is an accepted method of addressing leftover, or residual, funds remaining in a settlement account once all known settlement class members have been made whole. *Cy pres* may be used in class action settlements "where the proof of individual claims would be burdensome or distribution of damages costly." *Dennis v. Kellogg Co.*, 697 F.3d 858, 865 (9th Cir. 2012). Under principles established by the American Law Institute ("ALI"), any leftover funds should first be distributed to known class members; only when it is not economically viable to do so should a court engage in a *cy pres* program:

A court may approve a settlement that proposes a *cy pres* remedy even if such a remedy could not be ordered in a contested case. The court must apply the following criteria in determining whether a *cy pres* award is appropriate:

- (a) If individual class members can be identified through a reasonable effort, and the distributions are sufficiently large to make individual distributions economically viable, settlement proceeds should be distributed directly to individual class members.
- (b) If the settlement involves individual distributions to class members and funds remain after distributions (because some class members could not be identified or chose not to participate), the settlement should presumptively provide further distributions to participating class members unless the amounts involved are too small to make individual distributions economically viable or other specific reasons exist that would make such further distributions impossible or unfair.
- (c) If the court finds that individual distributions are not viable based on the criteria set forth in subsections (a) and (b), the settlement may utilize a *cy pres* approach. The court, when feasible, should require the parties to identify a recipient whose interests reasonably approximate those being pursued by the class. If, and only if, no recipient whose interests reasonably approximate those being pursued by the class can be identified after

thorough investigation and analysis, a court may approve a recipient that does not reasonably approximate the interests being pursued by the class.

PRINCIPLES OF THE LAW OF AGGREGATE LITIGATION § 3.07 (Am. Law. Inst. 2010); *see also In re Checking Account Overdraft Litig.*, Case No. 1:09-MD-02036-JLK, at 2–3 (S.D. Fla. Apr. 15, 2013) (Exhibit A). The ALI further clarifies in its comments to § 3.07:

[A]ssuming that further distributions to the previously identified class members would be economically viable, that approach is preferable to *cy pres* distributions. This Section rejects the position urged by a few commentators that a *cy pres* remedy is preferable to further distributions to class members. . . . This Section takes the view that in most circumstances, distributions to class members better approximate the goals of the substantive laws than distributions to third parties that were not directly injured by the defendant’s conduct.

PRINCIPLES OF THE LAW OF AGGREGATE LITIGATION § 3.07 cmt.b.

A *cy pres* distribution, therefore, should take place only when a court cannot distribute settlement funds to known class members. *See In re Checking Account Overdraft Litig.*, at 3; *Nachshin*, 663 F.3d at 1038 (“In the context of class action settlements, a court may employ the *cy pres* doctrine to ‘put the *unclaimed fund* to its next best compensation use, *e.g.*, for the aggregate, indirect, prospective benefit of the class.’”) (emphasis added) (citing *Masters v. Wilhelmina Model Agency, Inc.*, 473 F.3d 423, 436 (2d Cir. 2007) (quoting 2 HERBERT B. NEWBERG & ALBA CONTE, NEWBERG ON CLASS ACTIONS § 10:17 (4th ed. 2002))).

Similar to the proposed Education Fund *cy pres* in the Revised Settlement, the settlement in *In re Checking Account Overdraft Litigation* skipped over the “distribution to known class members” provided for by the ALI procedures and moved directly to *cy pres* through an “initial *cy pres* program.” *In re Checking Account Overdraft Litig.*, at 3. There, the “initial *cy pres* program” set aside 12.5% of the net settlement fund as the estimated amount that would have been paid to the settlement class members who the lawyers estimated were “unidentifiable due to a dearth of adequate banking records.” *Id.* at 3–4. While the settlement agreement allowed for the

remainder of the fund to be paid to known settlement class members for whom the parties had adequate data, the 12.5% set aside would go directly to the *cy pres* fund. *Id.* at 4.

The court, however, went on to hold that such a settlement provision did not comply with the ALI principles outlined above, requiring unidentifiable class members' shares of settlement funds to be paid to known settlement class members before any *cy pres* program is enacted. *Id.* In fact, the court changed its mind regarding the *cy pres*, noting that an objector correctly argued at the final fairness hearing that “*cy pres* is intended to be a residual program, what you do with the remainder,” and that this initial pre-distribution of funds was not *cy pres* at all, because the known class members have not yet been made whole. *Id.* (citations omitted).

The court ultimately required the 12.5% set aside to be given to known settlement class members ahead of non-party *cy pres* charities, noting the 12.5% set aside “was, and is, not a proper *cy pres* program,” but instead “a diversion of funds that does not comport with the proper procedure for utilizing a *cy pres* program in the distribution of class action settlement funds as outlined by the ALI.” *Id.* at 4–5; *see also Dennis*, 697 F.3d at 865–67 (rejection of initial *cy pres* fund comprising \$5.5 million of Kellogg food items to be donated to charities feeding the indigent — albeit for reasons other than ALI class settlement fund distribution principles).

Similarly, here, the proposed Education Fund is not a proper *cy pres* program, but instead, a diversion of funds away from the players—the Settlement Class Members—that does not comport with the proper procedure for a *cy pres* program under the ALI principles and governing case law. It is indisputable the RSA will not make the players whole. That being the case, the Armstrong Objectors propose the RSA be revised to eliminate the Education Fund so that the \$10 million can be utilized for the direct benefit of the players (as described above).

13. **The release is too broad.** The Armstrong Objectors object to the release in the RSA. The Court most likely is aware of *Dent, et al, v. National Football League*; Cause No. C-14-2324 KAW; in the United States District Court for the Northern District of California, a putative class action, wherein plaintiffs sued the NFL regarding the promotion and use of various medications that were either improperly used or illegally used and dispensed. One of the medications, Toradol, as stated above, can actually increase the likelihood of a concussion according to some medical reports. The release in the RSA arguably releases the class members' claims in *Dent*. The Armstrong Objectors, therefore, propose the release in the RSA be revised and narrowed to release only the claims being compensated in the settlement of this litigation.

WHEREFORE, the Armstrong Objectors respectfully request that the Court (i) enter an order (a) denying final approval of the settlement embodied in the Class Action Settlement Agreement as of June 25, 2014 (Doc. #6087), and (b) recommending the Parties revise the Class Action Settlement Agreement as set forth above, and (ii) grant such other and further relief to the former NFL players the Court deems just and proper.

Date: September 3, 2014

Respectfully submitted,

/s/ Mitchell A. Toups

Mitchell A. Toups

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CERTIFICATE OF SERVICE

I certify that a true copy of the Objection to the June 25, 2014 Revised Class Settlement by Nathaniel Newton, Jr., Ramon Armstrong, Larry Brown, Kenneth Davis, Michael McGruder, Clifton L. Odom, and George Teague was served on all counsel of record, via the Court's ECF System, on September 3, 2014.

/s/ Mitchell A. Toups
Mitchell A. Toups

Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Objection to the June 25, 2014 Revised Class Settlement in this matter, and I authorize my above-listed Counsel to file the Objection on my behalf.



Nathaniel Newton, Jr. (DOB: December 20, 1961)
936 Oakcrest Drive
Wylie, TX 75098
(972) 741-9566

8-25-14
Date

Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Objection to the June 25, 2014 Revised Class Settlement in this matter, and I authorize my above-listed Counsel to file the Objection on my behalf.

Ray Armstrong (DOB: October 6, 1937)
1103 Oak Creek Drive
Ennis, TX 75119
(214) 538-6420

Date

Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Objection to the June 25, 2014 Revised Class Settlement in this matter, and I authorize my above-listed Counsel to file the Objection on my behalf.

Larry Brown (DOB: November 30, 1969)
5603 Sycamore Drive
Colleyville, TX 76034
(817) 723-5601

Date

Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Objection to the June 25, 2014 Revised Class Settlement in this matter, and I authorize my above-listed Counsel to file the Objection on my behalf.

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Larry Brown (DOB: November 30, 1969)
5603 Sycamore Drive
Colleyville, TX 76034
(817) 723-5601

Date

AUG 26, 2019

Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Objection to the June 25, 2014 Revised Class Settlement in this matter, and I authorize my above-listed Counsel to file the Objection on my behalf.


Kenneth Davis (DOB: April 16, 1962)
1224 Brooklawn Drive
Arlington, TX 76018
(817) 680-8307

8-26-14
Date

Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Objection to the June 25, 2014 Revised Class Settlement in this matter, and I authorize my above-listed Counsel to file the Objection on my behalf.

Michael McGruder (DOB: May 6, 1964)
835 East Lamar Blvd., No. 236
Arlington, TX 76011
(214) 208-0240

Date _____

Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Objection to the June 25, 2014 Revised Class Settlement in this matter, and I authorize my above-listed Counsel to file the Objection on my behalf.

Clifton L. Odom (DOB: April 15, 1958)
6708 Martha's Vineyard Drive
Arlington, TX 76034
(817) 602-6617


Date _____

Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Objection to the June 25, 2014 Revised Class Settlement in this matter, and I authorize my above-listed Counsel to file the Objection on my behalf.

Kenneth Davis (DOB: April 16, 1962)
1224 Brooklawn Drive
Arlington, TX 76018
(817) 680-8307

Date

Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Objection to the June 25, 2014 Revised Class Settlement in this matter, and I authorize my above-listed Counsel to file the Objection on my behalf.


Michael McGruder (DOB: May 6, 1964)
835 East Lamar Blvd., No. 236
Arlington, TX 76011
(214) 208-0240

Date

Aug 25 2014

Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Objection to the June 25, 2014 Revised Class Settlement in this matter, and I authorize my above-listed Counsel to file the Objection on my behalf.

Clifton L. Odom (DOB: April 15, 1958)
6708 Martha's Vineyard Drive
Arlington, TX 76034
(817) 602-6617

Date

Under 28 U.S.C. § 1746, I declare that I am a Settlement Class Member, I agree with the above and foregoing Objection to the June 25, 2014 Revised Class Settlement in this matter, and I authorize my above-listed Counsel to file the Objection on my behalf.

George Teague (DOB: February 12, 1971)
1000 Delaware Drive
Carrollton, TX 75010
(469) 742-3630

Date _____

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA**

**IN RE: NATIONAL FOOTBALL
LEAGUE PLAYERS' CONCUSSION
LITIGATION**

~~~~~

**No. 12-md-2323 (AB)**

MDL No. 2323

**THIS DOCUMENT RELATES TO:  
ALL ACTIONS**

## DECLARATION OF MITCHELL A. TOUPS

I, Mitchell A. Toups, Esq., hereby declare as follows:

1. I am a partner with the law firm of Mitchell A. Toups, Esq., Weller, Green, Toups & Terrell LLP (“WGTT”), P.O. Box 350, Beaumont, Texas 77704, duly admitted to practice before the courts of the State of Texas.

2. WGTT, along with The Coffman Law Firm (CLF), The Webster Law Firm (WLF) and The Warner Law Firm (“TWLF”), have been retained to represent Ramon Armstrong, Nathaniel Newton, Jr.; Larry Brown; Kenneth Davis; Michael McGruder; Clifton L. Odom; and George Teague, with regard to their claims in the above-referenced litigation.

3. All of these Plaintiffs have executed engagement agreements authorizing the WGTT, CLF, WLF and TWLF to take all necessary action to investigate and to prosecute any and all claims related to the NFL Concussion Litigation, including objections to this settlement.

4. I declare under the penalty of perjury that to the best of my knowledge, the foregoing is true and accurate.

DATED this 3<sup>rd</sup> day of September, 2014.

Mitchell A. Toups, Esq.

**UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF PENNSYLVANIA**

IN RE: NATIONAL FOOTBALL  
LEAGUE PLAYERS' CONCUSSION  
INJURY LITIGATION

No. 2:12-md-02323-AB  
MDL No. 2323

Kevin Turner and Shawn Wooden,  
*on behalf of themselves and  
others similarly situated,*

Civil Action No. 2:14-cv-00029-AB

Plaintiffs,

V.

National Football League and  
NFL Properties, LLC,  
successor-in-interest to  
NFL Properties, Inc.,

Defendants.

THIS DOCUMENT RELATES TO:  
ALL ACTIONS

**SUPPLEMENT TO OCTOBER 6, 2014, OBJECTION OF SEAN MOREY,  
ALAN FANECAL, BEN HAMILTON, ROBERT ROYAL,  
RODERICK CARTWRIGHT, JEFF ROHRER, AND SEAN CONSIDINE**

Sean Morey, Alan Faneca, Ben Hamilton, Robert Royal, Roderick “Rock” Cartwright, Jeff Rohrer, and Sean Considine (collectively, “Objectors”) submit this motion in further support of their Objection filed on October 6, 2014, Dkt. No. 6201 (“Objection”). Objectors supplement their argument, set forth in Part III.B of the Objection, that the National Football League (“NFL”) is able to withstand a far greater judgment than that provided by the Settlement.

A court assessing the fairness, reasonableness, and adequacy of a settlement must consider, among other factors, “the ability of the defendants to withstand a greater judgment,” with “[t]he proponents of the settlement bear[ing] the burden of proving” that this factor weighs in favor of approval. *In re Gen. Motors Corp. Pick-Up Truck Fuel Tank Prods. Liab. Litig.*, 55

F.3d 768, 785 (3d Cir. 1995). The settling parties have failed to meet this burden. The Settlement – to the extent the NFL and not its insurers pays for it – is a drop in the bucket considering the financial situation of Defendants.

### **I. The Settling Parties’ Valuation of the Cost of the Settlement**

When this Court denied the settling parties’ initial proposed settlement, it “express[ed] concern as to the adequacy of the proposed \$675 million Monetary Award Fund in light of the 65-year lifespan of the Monetary Award Fund, the settlement class size of more than 20,000 members, and the potential magnitude of the awards.” Dkt. No. 6083 at 3; *see also* Dkt. No. 5657 at 10-11 (“Even if only 10 percent of Retired NFL Football Players eventually receive a Qualifying Diagnosis, it is difficult to see how the Monetary Award Fund would have the funds available over its lifespan to pay all claimants at these significant award levels.”). The settling parties did not respond by increasing the value of the Settlement. Instead, the settling parties in their own words “became so confident in the prior actuarial assumptions and projections” that they agreed to an uncapped settlement because they did not think it would affect the compensation the NFL would have to actually pay. Dkt. No. 6073-5 at 1. In other words, the settling parties are confident Defendants will never have to pay anything more than an amount that this Court questioned as inadequate.

Although the settling parties proclaim the purportedly “clear benefits of an uncapped class action,” the settling parties themselves “remain undeterred in their belief that the \$760 million deal originally struck would have been sufficient.” Dkt. No. 6073-5 at 2, 12. Class Counsel’s actuary estimates only about 17% of class members will receive any monetary compensation at all. Dkt. No. 6167 at 3-4. The NFL’s actuarial report shows that out of the sample of 1,592 retired players surveyed as part of the actuarial study, only 175 (11%) would receive a Qualifying Diagnosis. *See* Dkt. No. 6168 at 19. The settling parties, moreover, have

established a complex procedural labyrinth that players – many of whom currently are suffering from cognitive injuries – must navigate to qualify for relief. *See* Dkt. No. 6201 at 73-78.

Though the settling parties have made numerous representations to both the players and the press about the tremendous value of the current Settlement and its all-but guaranteed payment to players, *see* Dkt. No. 6201 at 48-52, the NFL has tellingly remained tight-lipped about how much it – as opposed to its insurers – will be paying out to the players.<sup>1</sup> In short, absent class members do not know how much, if anything, of the Settlement will come out of the NFL’s own pocket.

## II. The NFL Can Afford To Pay More

The NFL unquestionably can afford to pay more for the harm it has caused. The NFL is a veritable money-making machine with extraordinary individual sources of revenue that, alone, could fund the Settlement in very little time. The NFL’s 2013 revenue exceeded \$10 billion, and it projects annual revenue of \$25 billion by 2027.<sup>2</sup> Moreover, it enjoys tremendous tax benefits. Unlike the National Basketball Association and Major League Baseball, the NFL enjoys a special

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<sup>1</sup> This question is currently being litigated in courts across the country. *See Discovery Prop. & Cas. et al. v. NFL*, Index No. 652933-2012 (N.Y. Sup. Ct. filed Aug. 21, 2012) (insurers sued the NFL for forcing them to pay to defend it for failing to protect players from brain injury); *NFL v. Fireman’s Fund Ins. Co.*, Index No. 490342 (Sup. Ct. Los Angeles Cnty. filed Aug. 15, 2012) (suit brought by the NFL based on its insurers’ refusal to defend or indemnify for damages arising from a judgment or settlement in this case); *Alterra Am. Ins. Co. v. NFL*, Index No. 652813-2012 (N.Y. Sup. Ct. filed Aug. 13, 2012). As one reporter aptly noted, “[t]he National Football League’s financial settlement of former players’ concussion-related litigation likely will be paid with a combination of insurer funds and higher prices for game tickets and media rights.” Sheena Harrison, *NFL Concussion Settlement Funds Will Come from Insurers and Higher Ticket Prices*, BusinessInsurance.com (Aug. 17, 2004), <http://www.businessinsurance.com/article/20140817/NEWS06/140819894>.

<sup>2</sup> Brent Schrotenboer, *NFL Takes Aim at \$25 Billion, but at What Price?*, USA Today (Feb. 5, 2014), <http://www.usatoday.com/story/sports/nfl/super/2014/01/30/super-bowl-nfl-revenue-denver-broncos-seattle-seahawks/5061197>.

tax exemption as a supposedly nonprofit “trade association” that shields it from millions of dollars of federal tax liability.<sup>3</sup>

The ability of the NFL to pay more becomes all the more clear when specific sources of revenue are considered. Some examples:

### **Broadcasting Rights Deals**

**Broadcast TV.** The NFL has agreements with NBC, Fox, and CBS that will reach nearly \$28 billion in fees over nine years.<sup>4</sup> The broadcast television contracts alone could cover the cost of the NFL’s estimated value of the Settlement in under three months.

CBS alone has agreed to pay a reported \$275 million in 2014 for rights to air Thursday night NFL games.<sup>5</sup> The Thursday night television contract alone could cover the cost of the NFL’s estimated value of the Settlement in under three years.

**Monday Night Football.** In 2011, the NFL renewed its “Monday Night Football” contract – representing the highest-rated show on cable television – with ESPN until 2021.<sup>6</sup> Under that agreement, the NFL will receive \$1.9 billion annually, for a total of \$15.2 billion over the eight-year life of the contract.<sup>7</sup> The Monday Night Football contract alone could cover the cost of the NFL’s estimated value of the Settlement in only five months.

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<sup>3</sup> Drew Griffin and Sean Kennedy, *Is the NFL Skirting the Tax Man?*, CNN U.S. (Sept. 23, 2014), <http://www.cnn.com/2014/09/22/us/nfl-nonprofit-taxes>.

<sup>4</sup> Joe Flint, *NFL Signs TV Rights Deals with Fox, NBC and CBS*, Los Angeles Times (Dec. 15, 2011), <http://articles.latimes.com/2011/dec/15/business/la-fi-ct-nfl-deals-20111215>.

<sup>5</sup> Daniel Kaplan, *TV Money Up 20 Percent for NFL Clubs*, Sports Business Journal (July 21, 2014), <http://www.sportsbusinessdaily.com/Journal/Issues/2014/07/21/Finance/NFL-revenue.aspx>; John Ourand, *How CBS Won Thursday Night*, Sports Business Journal (Feb. 10, 2014), <http://www.sportsbusinessdaily.com/Journal/Issues/2014/02/10/Media/NFL-CBS.aspx>.

<sup>6</sup> Richard Sandomir, *ESPN Extends Deal with N.F.L. for \$15 Billion*, The N. Y. Times (Sept. 8, 2011), <http://www.nytimes.com/2011/09/09/sports/football/espn-extends-deal-with-nfl-for-15-billion.html>.

<sup>7</sup> *Id.*; Kaplan, *supra* n.5

**DirecTV.** The NFL has provided DirecTV with “the exclusive right to air out-of-market games.”<sup>8</sup> That deal is estimated to bring the NFL nearly \$1.5 billion per year over eight years.<sup>9</sup> The DirecTV contract alone could cover the cost of the NFL’s value of the Settlement in six months.

When these long-term television agreements are all combined, it is estimated the NFL will receive \$6.45 billion annually – almost ten times the amount the NFL asserts is sufficient to cover the debilitating diseases of retired players over the next 65 years.<sup>10</sup>

### **Ticket Sales**

The NFL’s 32 teams average approximately \$50 million annually in ticket sales, or \$1.6 billion total.<sup>11</sup> Ticket sales alone could fund the NFL’s perceived value of the Settlement twice-over in under a year.

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<sup>8</sup> Darren Rovell, *NFL, DirecTV Extend Deal for 8 Years*, ESPN.com (Oct. 1, 2014), [http://espn.go.com/nfl/story/\\_/id/11624442/nfl-extends-sunday-ticket-deal-directv](http://espn.go.com/nfl/story/_/id/11624442/nfl-extends-sunday-ticket-deal-directv).

<sup>9</sup> *Id.*

<sup>10</sup> *Id.*; see also Kaplan, *supra* n.5 (“The NFL in 2011 signed new deals with NBC, Fox and CBS, taking the deals that ended in 2013 through 2022,” with “[t]he average price paid annually from the three deals r[ising] from \$1.9 billion to \$3 billion collectively.”).

<sup>11</sup> Darren Rovell, *Package Renewals Hit 90.6 Percent*, ESPN.com (Aug. 17, 2012), [http://espn.go.com/nfl/story/\\_/id/8278246/nfl-season-ticket-renewals-league-says](http://espn.go.com/nfl/story/_/id/8278246/nfl-season-ticket-renewals-league-says) (noting that the \$102.5 million in average television revenues made by each team annually is about double of what the average team makes in ticket sales). The Super Bowl alone probably generates **annual** ticket sales far exceeding \$100 million. Jon C. Ogg, *Super Bowl XLVII by the Numbers*, USA Today (Feb. 2, 2013), <http://www.usatoday.com/story/money/business/2013/02/01/super-bowl-factoids-24-7/1880601/>. And one estimate has concluded that “NFL teams make \$160 million in revenue from a sold-out pre-season.” Jesse Lawrence, *How Do Prices for Pre-Season NFL Tickets Compare to Regular Season?*, Forbes (Sept. 3, 2013), <http://www.forbes.com/sites/jesselawrence/2013/09/03/how-do-prices-for-pre-season-nfl-tickets-compare-to-regular-season>.

### **Club Seats**

“The Cowboys, Washington Redskins and New York Giants all generate at least \$75 million annually from club seats and luxury suites.”<sup>12</sup> Club seats and luxury suites from those three teams alone could fund the NFL’s perceived value of the Settlement in just over a decade.

### **Super Bowl Ads**

The NFL brings in incredible amounts of money from advertising. In the last decade, advertisers have spent \$1.85 billion during the Super Bowl alone.<sup>13</sup> And in 2013, the price of a single 30-second Super Bowl ad was over \$4 million.<sup>14</sup> Future Super Bowl advertising revenue could fund the NFL’s perceived value of the Settlement in under three years.<sup>15</sup>

### **The Verizon Deal**

Television networks are not the only sources of large revenue. The NFL will receive approximately \$1 billion over the next four years from Verizon Wireless for granting it mobile phone streaming rights – and those rights only include Sunday afternoon and playoff games.<sup>16</sup> The Verizon contract alone could fund the cost of the NFL’s estimated value of the Settlement in under three years.

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<sup>12</sup> Kurt Badenhausen, *NFL Stadiums: By the Numbers*, Forbes (Aug. 14, 2013), <http://www.forbes.com/sites/kurtbadenhausen/2013/08/14/nfl-stadiums-by-the-numbers>.

<sup>13</sup> Toni Fitzgerald, *Big Game: Super Bowl by the Numbers*, MediaLife Magazine (Jan. 25, 2013), <http://www.medialifemagazine.com/big-game-super-bowl-by-the-numbers>.

<sup>14</sup> Chris Isidore, *Why Football Is Still a Money Machine*, CNN Money (Feb. 1, 2013), <http://money.cnn.com/2013/02/01/news/companies/nfl-money-super-bowl/index.html>. That is the same figure the proposed Settlement offers the family of players who died with CTE before July 7, 2014 – but not the families of players who die with CTE after that date.

<sup>15</sup> Ed Molina, *Super Bowl 2014 News: Super Bowl XLVIII Expected to Bring Big Super Ad Revenues for Fox Sports* (Feb. 1, 2014), <http://www.latinopost.com/articles/3713/20140201/super-bowl-super-bowl-2014-super-bowl-2014-commercials-fox-sports-denver-brocos-vs-seattle-seahawks-super-bowl-2014-super-bowl-2014-advertising-costs.htm#ixzz3IneS3UYQ>.

<sup>16</sup> Katie Lobosco, *Verizon Inks Deal to Live-Stream Sunday Afternoon NFL Games*, CNN Money (June 5, 2013), <http://money.cnn.com/2013/06/05/technology/mobile/verizon-nfl>.





### **The Bose Deal**

Motorola previously paid the NFL \$40 million per year for the past 13 years in exchange for being one of only four corporate partners with in-game branding rights at NFL stadiums.<sup>20</sup> Bose is now scheduled to replace Motorola as the League's exclusive headphone and headset sponsor.<sup>21</sup> While it is unclear what the exact terms of this agreement are, if it were comparable to the NFL's agreement with Motorola, the Bose agreement alone could cover the cost of the NFL's estimated value of the Settlement in less than two decades.

### **Stadium Naming Rights and Other Advertising Revenue**

Individual teams generate substantial revenue from sponsorship and advertising. The Dallas Cowboys, for example, "earned \$100 million from sponsorships and advertising signage" in 2012.<sup>22</sup> At that rate, these revenues alone could cover the cost of the NFL's estimated value of the Settlement in less than eight years.

### **Merchandising and Licensing**

Estimates also show that the NFL receives at least \$1 billion annually in merchandising and licensing revenue – money brought in from the sale of every NFL-branded product, like jerseys.<sup>23</sup> In a particularly good year, NFL merchandise sales exceed \$2 billion.<sup>24</sup> These revenues alone would pay for the Settlement's purported 65-year payout period in less than half a year.

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<sup>20</sup> David Cushnan, *Bose Replaces Motorola as NFL Headset Provider*, SportsProMedia.com (Mar. 25, 2014), [http://www.sportspromedia.com/news/bose\\_replaces\\_motorola\\_as\\_nfls\\_headset\\_manufacturer](http://www.sportspromedia.com/news/bose_replaces_motorola_as_nfls_headset_manufacturer).

<sup>21</sup> *Id.*

<sup>22</sup> Badenhausen, *supra* n.12.

<sup>23</sup> Schrotenboer, *supra* n.2.

<sup>24</sup> Daniel Roberts, *The Biggest Losers in an NFL Lockout? Everyone.*, Fortune (Mar. 4, 2011), [http://archive.fortune.com/2011/03/03/news/companies/nfl\\_lockout\\_losers\\_labor.fortune/index.htm](http://archive.fortune.com/2011/03/03/news/companies/nfl_lockout_losers_labor.fortune/index.htm) (estimating 2010 NFL merchandise sales were \$2.1 billion, and 2009 sales were \$2.5 billion).

\* \* \* \* \*

As these examples demonstrate, the NFL can clearly withstand a judgment far greater than this Settlement would provide. The NFL can also afford to pay a substantial amount more in a renegotiated settlement that would provide meaningful compensation to those who are diagnosed with CTE or die with CTE after July 7, 2014.

The NFL has projected it will reach nearly **\$25 billion** in annual revenue in only 13 years.<sup>25</sup> That number dwarfs the \$765 million the NFL touts as sufficient for compensating the thousands of seriously debilitated former players over the next 65 years.

### **III. An Alternative Settlement Structure Should Maximize Money Available to Players**

The settling parties have engineered a Settlement to ensure that players, their families, and taxpayers (through programs such as Medicare and Medicaid), shoulder most of the burden of taking care of players who have serious, debilitating, and degenerative brain injuries. That is precisely the opposite of what a fair, reasonable, and adequate settlement should look like. This Court has discretion when determining whether the Settlement should be approved. But “[d]iscretion is not whim, and limiting discretion according to legal standards” promotes justice and fairness. *Martin v. Franklin Capital Corp.*, 546 U.S. 132, 139 (2005). Here, the Settlement fails to meet any reasonable conception of an agreement that complies with Rule 23 and due process.

There are a range of possible settlements that could warrant approval. For example, if ***all*** cases of death with CTE were adequately compensated; if the 75% offsets for a single traumatic

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<sup>25</sup> Monte Burke, *How the National Football League Can Reach \$25 Billion in Annual Revenues*, Forbes (Aug. 17, 2013), <http://www.forbes.com/sites/monteburke/2013/08/17/how-the-national-football-league-can-reach-25-billion-in-annual-revenues/>.

brain injury or stroke were removed; and if credit were given for seasons in NFL Europe, the Settlement would look far more reasonable.<sup>26</sup>

Instead of minimizing the number of claimants and the amount of money the NFL pays, a reasonable settlement could also do more to maximize the dollars available to players across the class. A more reasonable settlement could, for example, allow players to participate in a revised, uncapped, baseline assessment program that would provide ***both screening and meaningful treatment***; even the original proposed settlement rejected by this Court had an uncapped baseline assessment program. A more reasonable settlement could also compensate players with brain injuries for their reduced future earning capacity. Or a more reasonable settlement could use a lump sum to purchase health insurance for players who later suffer from cognitive illnesses. By purchasing health insurance now – instead of announcing a purportedly uncapped settlement while acknowledging that the vast majority of players will never recover a dime – the NFL would ensure that it, rather than players, their families, and federal and state governments, would be responsible for the cost of treating retired players. Doing so would also give the NFL a strong incentive to invest in advancing the science behind the injuries, so illness could be diagnosed and

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<sup>26</sup> The prevalence of CTE among absent class members cannot be overstated. One study found that evidence of CTE was found in **76 of 79** deceased NFL players whose brains were autopsied. Jason Breslow, *76 of 79 Deceased NFL Players Found to Have Brain Disease*, PBS Frontline (Sept. 30, 2014), <http://www.pbs.org/wgbh/pages/frontline/sports/concussion-watch/76-of-79-deceased-nfl-players-found-to-have-brain-disease>. There is no indication that this rate will diminish. Numerous players are still suffering from tremendous hits and resulting concussions. See, e.g., Tom Pelissero, *Seahawks WR Sidney Rice Retires Because of Concussions*, USA Today (July 23, 2014), <http://www.usatoday.com/story/sports/nfl/seahawks/2014/07/23/sidney-rice-seattle-retires-concussions/13060401/>; Josh Katzenstein, *Lions' Waddle Returned to Field with Brain Injury*, The Detroit News (Oct. 23, 2014), <http://www.detroitnews.com/story/sports/nfl/lions/2014/10/23/lions-waddle-returned-field-brain-injury/17764267/>; Dan Diamond, *Did LeSean McCoy Have a Concussion? Eagles Star RB Takes Hit to Head, Fans Erupt*, Forbes (Sept. 21, 2014), <http://www.forbes.com/sites/dandiamond/2014/09/21/did-lesean-mccoy-have-a-concussion-eagles-star-takes-hit-to-head-fans-erupt/>; Josh Weinfuss, *LB John Abraham Leaves Cardinals*, ESPN.com (Sept. 10, 2014), [http://espn.go.com/nfl/story/\\_/id/11502913/john-abraham-leaves-arizona-cardinals-suffering-memory-loss](http://espn.go.com/nfl/story/_/id/11502913/john-abraham-leaves-arizona-cardinals-suffering-memory-loss).



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## CERTIFICATE OF SERVICE

I hereby certify that on November 11, 2014, I caused the foregoing Motion for Production of Evidence to be filed with the United States District Court for the Eastern District of Pennsylvania via the Court's CM/ECF system, which will provide electronic notice to all counsel and parties.

/s/ Steven F. Molo

# Exhibit 3



**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF PENNSYLVANIA**

IN RE: NATIONAL FOOTBALL LEAGUE  
PLAYERS' CONCUSSION INJURY  
LITIGATION

No. 2:12-md-02323-AB

MDL No. 2323

Hon. Anita B. Brody

THIS DOCUMENT RELATES TO:

## ALL ACTIONS

**DECLARATION OF ORRAN L. BROWN, SR.**

I, ORRAN L. BROWN, SR., hereby declare and state as follows:

## I. INTRODUCTION

**1.        *Personal Information.*** My name is Orran L. Brown, Sr. I am the Chairman and a founding partner of BrownGreer PLC, located at 250 Rocketts Way, Richmond, Virginia 23231.

**2.        *The Capacity and Basis of this Declaration.*** I am over the age of 21. The matters set forth in this Declaration are based upon my personal knowledge and information received from the parties in this proceeding. The opinions presented and recommendations made in this Declaration rest on my training and experience.

**3.      *The Purpose of this Declaration.*** I submit this Declaration to describe my relevant experience, the mailing of the Notice to the Class as part of the Notice Plan developed for the proposed class action settlement of this litigation, the official public website used to provide information about the proposed settlement, and questions received by the Claims Administrator regarding the settlement.

## **II. BACKGROUND AND EXPERIENCE**

**4. *Summary of My Personal Experience.*** I have worked in the mass claims area, including class actions, for over 25 years. I have extensive experience as a lawyer handling class action proceedings, settlements and notices; as a claims administrator designing and implementing class action settlements, notice plans and notices to claimants and counsel; as a notice administrator; as a trustee or special master involved in multiple claim proceedings; and as an educator on class actions and other complex litigation. My personal biography is attached to this Declaration as Attachment 1.

**5. *General Description of BrownGreer.*** BrownGreer has specialized in notice administration and settlement administration since my partner, Lynn Greer, and I founded the firm in 2002. We are experts in the legal and administrative aspects of the design, approval, and implementation of notice plans, settlement programs and the design, staffing and operation of claims facilities to provide damages payments, medical monitoring, or other benefits for the resolution of multiple claims through class action settlement, bankruptcy reorganization, voluntary agreement, or other aggregation vehicles. We have played major roles in many of the largest and most complex multiple claim proceedings and multiple claim settlement programs in history, serving as administrators, special masters, trustees, or settlement counsel. The BrownGreer summary attached as Attachment 2 to this Declaration provides detail on our firm.

**6. *Summary of Experience.*** BrownGreer has performed crucial administration or review roles in over 60 major programs involving over 31,000,000 class members and the disposition of over \$29 billion in payments to qualifying claimants. We have extensive experience in all aspects of notice and settlement design and implementation, including

developing and applying software programs to aid in the accumulation and updating of mailing lists and contact information of such persons and the review of materials received in settlement programs.

### **III. DEVELOPMENT OF THE MASTER MAILING LIST USED IN THE NOTICE PLAN.**

**7. *Commencement and Goals of the Analysis.*** At the request of Class Counsel, BrownGreer assisted in the creation of the mailing list to be used in the direct mail component of the Settlement Class Notice Plan in this action. This work began on October 8, 2013, when BrownGreer first received a set of player data and began the process of aggregating various sets of data and the analysis necessary to assemble a list of known players possibly in the Settlement Class. The goals of this effort were to identify from available information sources: (1) as many living NFL Football Players (which includes players in the American Football League, the World League of American Football, the NFL Europe League and the NFL Europa League) as possible, whether currently playing or not playing, who may be within the Settlement Agreement's definition of Retired NFL Football Players; (2) as many deceased NFL Football Players as possible; (3) the family members of deceased NFL Football Players; and (4) the best known mailing address of living NFL Football Players and the family members of deceased NFL Football Players.

**8. *Datasets Involved in this Analysis.*** In the course of this work, BrownGreer received 31 datasets and created two more, for a total of 33 datasets of information on Class Members. These datasets varied by content and source. They included some combination of living and deceased players' names, dates of birth, dates of death, team names, years played, and the names, addresses, dates of birth, and dates of death of players' relatives. None of the datasets provided the same data points or provided complete address information on all player names.



that lists names, dates of birth, dates of death, and the debut teams of all deceased professional football players. This list was intended to include all former NFL players known to be deceased.

**12. *Lists from Certain NFL Teams.*** Class Counsel provided BrownGreer with datasets for living and deceased players, coaches, and relatives they received from 11 NFL teams: the Baltimore Ravens, the Buffalo Bills, the Cincinnati Bengals, the Cleveland Browns, the Detroit Lions, the Green Bay Packers, the New York Jets, the Philadelphia Eagles, the San Francisco 49ers, the Tampa Bay Buccaneers, and the Tennessee Titans. These are Rows 17-27 in Attachment 3.

**13. *Official NFL.com Website Data.*** BrownGreer programmed a web crawler to pull publicly available data from [www.NFL.com](http://www.NFL.com), the official website of the NFL. A web crawler is a program designed to search public websites systematically and record information made available by those sites, without having to pull the data by hand, one name at a time. NFL.com maintains a database of statistics for what it calls “Current” and “Historical” players. BrownGreer pulled player names, dates of birth, and/or places of birth for both Current and Historical players listed on this website. This yielded the full names and dates of birth of 27,267 players (Row 28 in Attachment 3), of whom 3,010 were listed as Current and 24,257 as Historical. This website does not provide mailing addresses for any of these current or former players.

**14. *DatabaseSports.com Data.*** BrownGreer also programmed a web crawler to pull publicly-available data from the [www.databasesports.com](http://www.databasesports.com) website. Databasesports.com maintains an online database of statistics and other information for popular sports, including football. BrownGreer pulled player names, positions, dates of birth, and places of birth from that website for 22,138 players (Row 29 in Attachment 3). This website does not furnish mailing





identical addresses returned for the names that had certain differing data attributes from other lists and could not be safely removed until the addresses could be found to match. BrownGreer removed 20,838 duplicates in this process, resulting in a dataset of 46,405 seemingly unique names of living individuals.

**21. *Query for Deceased Players.*** BrownGreer then returned that dataset to LexisNexis to run through their death database to identify whether any of the individuals were deceased but were not marked as deceased in any other yet available dataset. This yielded an additional 2,289 deceased individuals. BrownGreer combined that list with a separate list of 7,172 known deceased players for a total of 9,461 deceased individuals. After analyzing the combined list for duplicates, BrownGreer removed 1,783 names as duplicates for a total of 7,674 deceased players and relatives.

**22. *Removing Deceased Relatives.*** In the Settlement Class Notice Campaign, the Notice was to be mailed to the living relatives of a deceased player, and not to a deceased relative. Because BrownGreer derived names from different datasets that provided different data points, some deceased persons were identified as relatives while others were not. We had to do further research to identify them and remove deceased relatives, who were not to receive the mailed Notice in the Settlement Class Notice Campaign. A total of 123 persons marked as deceased relatives on the comprehensive list were identified as relatives in the original datasets, but to identify others, BrownGreer compared the names to our data on all known relatives and identified an additional 425 relatives who were deceased. We then removed all known deceased relatives from the list of deceased persons, which left us a list of 7,126 deceased players for whom we needed to try to find information on living relatives so that the Notice could be mailed to them.



**23. *Identifying Family Members of Deceased Players.*** To obtain the most current list of the family members of deceased players, BrownGreer sent the list of 7,126 deceased players to LexisNexis, which ran the names of deceased players through their first degree relative database to identify known relatives based upon their association with the player in national address lists, credit applications, and other data sources, and to obtain best known addresses for those relatives. First degree relatives include children, spouses, parents, and siblings. This resulted in 10,987 names of family members with available addresses.

**24. *Deceased Players without Relatives.*** After completing that search, there were 4,048 deceased players for whom neither BrownGreer nor LexisNexis was able to identify a living relative. BrownGreer sent the list of those players to LexisNexis to obtain the players' last known addresses. This resulted in 295 additional addresses.

**25. *Pro-Football-Reference.com Data.*** On December 8, 2013, after BrownGreer had completed the above steps, Class Counsel provided BrownGreer with a link to a post on the *Jeff Nixon Report* blog in which the author, Jeff Nixon, purported to list all professional football players since 1920 (Row 31 of Attachment 3). The list included 23,204 names of players, their position(s) and years played, and a column indicating whether the player is deceased. The list did not provide addresses, relative information, or dates of birth or death. BrownGreer compared this list to the other datasets we had and found exact matches for all but 612 names as they appeared on the lists. BrownGreer then went through each of the 612 names for which there was no exact match on one of the other lists and searched the other datasets for possible spelling variations of those names. BrownGreer identified 11 names that were not on one of the other lists and sent those names to LexisNexis to try to find mailing addresses for them. After these steps, BrownGreer identified one additional name with a valid address, that of a player.

**26. *Additional Lists from Certain NFL Teams.*** On December 18, 2013, Class Counsel provided BrownGreer with datasets for players from three additional NFL teams: the New York Giants, the Denver Broncos and the Kansas City Chiefs (Rows 32-34 of Attachment 3). These three datasets contained a total of 1,829 names, including 1,559 players and 270 relatives. None of the datasets included dates of birth or dates of death. BrownGreer ran the tests described above to identify and remove duplicates and sent the combined dataset to LexisNexis to attempt to find current addresses and relatives of deceased players. After these steps, BrownGreer identified an additional 621 names with addresses, consisting of 444 players and 177 relatives, who were not already in the comprehensive dataset.

**27. *Master Mailing List.*** On January 7, 2014, Class Counsel provided BrownGreer with instructions regarding the scope of the notice mailing list and BrownGreer finalized the list pursuant to those instructions, yielding a total list of 25,462 living players and 9,195 relatives of deceased players with addresses, for a total of 34,657 names with addresses in what became the Master Mailing List.

**28. *Updates to the Master Mailing List.*** In June 2014, Class Counsel asked BrownGreer to refresh the Master Mailing List. BrownGreer sent the January 7, 2014 comprehensive list of 34,657 names of players and relatives to LexisNexis to identify any recently deceased players and any address changes that had occurred since that date. This data analysis:

- (a) Confirmed 29 additional addresses of players and relatives not previously confirmed.
- (b) Yielded updated addresses for 5,784 players and relatives, which allowed BrownGreer to match 776 individuals as duplicates and remove them from the mailing list.

- (c) Identified 71 recently deceased players and 150 relatives for 59 of those players. This removed these 59 deceased player names from the mailing list and replaced them with the names and addresses of their relatives.
- (d) Identified 43 relatives for 31 deceased players previously with no known relatives. This removed these 31 deceased player names from the mailing list and replaced them with the names and addresses of their relatives.

**29. *Final Master Mailing List for Original Mailing.*** After these last steps, we had a Master Mailing List consisting of 25,060 living players with addresses and 8,924 relatives of deceased players with addresses, for a total of 33,984 names with addresses. The Mailing List Statistics report that is Attachment 4 to this Declaration provides a breakdown of the categories of players and relatives included on the Master Mailing List. For each category, the Mailing List Statistics indicate whether BrownGreer obtained the addresses through data research or used the addresses as provided in the original data source.

**30. *Establishing a Secure FTP Site for Data Transfers.*** BrownGreer created a secure FTP site for use in transferring the Master Mailing List to Smith Edwards Dunlap (“SED”), the firm that would mail the Notices to the individuals on the Master Mailing List, and Heffler Claims Group (“Heffler”), the firm maintaining the initial Call Center for the Settlement Program. On June 24, 2014, BrownGreer posted to Master Mailing List to the Secure FTP Site for access by authorized persons from these two firms.

**31. *Adding Counsel of Record to the Master Mailing List.*** Class Counsel directed BrownGreer to add counsel of record in MDL 2323 to the Master Mailing List. BrownGreer logged on to PACER, entered a query for MDL 2323 in the Eastern District of Pennsylvania, and downloaded a list of counsel of record for the plaintiffs and defendants in this proceeding. BrownGreer contacted the District Clerk’s office to confirm that the list was current and that the Clerk updates the list regularly. The Clerk’s list included (1) 172 individual attorneys

representing plaintiffs; (2) seven attorneys representing movants; (3) the Special Master; and (4) 69 attorneys representing defendants and other corporate parties, including, among others, the NFL, various NFL teams, Roger Goodell, All American Sports Corp., Easton-Bell Sports., Riddell, and ESPN. At Class Counsel's request, BrownGreer removed the Special Master and the 69 attorneys representing defendants and other corporate parties from the list. BrownGreer also removed 10 attorneys from the list of plaintiffs' counsel who were marked as having terminated their status as counsel for any party, resulting in a net list of 169 attorneys.

**32. *Announcement Regarding Master Mailing List on Public Website.***

BrownGreer included a statement on the public website for the Settlement Agreement, [www.NFLConcussionSettlement.com](http://www.NFLConcussionSettlement.com), inviting Settlement Class Members and their attorneys to send an email to [ClaimsAdministrator@NFLConcussionSettlement.com](mailto:ClaimsAdministrator@NFLConcussionSettlement.com) and furnish their name and current address (or the names and addresses of their clients). For any such emails received, BrownGreer checks the names provided against the Master Mailing List and informs the persons making this request whether the names appear on the Master Mailing List and at what addresses. We have performed this service for several firms.

**33. *Updating the Master Mailing List with Information Developed During the Notice Period.*** Working with SED and Heffler, BrownGreer established a process to update addresses for individuals included on the Master Mailing List and to add new individuals to the list. Each week, BrownGreer receives through the secure FTP site any forwarding address updates, different addresses located by research on returns with no forwarding address, and any caller address changes as compiled by SED and Heffler through processing returned mailing, conducting additional data research and through calls to the Call Center.

After these updates each week, BrownGreer posts an updated version of the Master Mailing List to the secure FTP site.

**34. *Direct Requests to Update the Master Mailing List.*** BrownGreer receives requests to update the Master Mailing List directly through correspondence to the Claims Administrator P.O. Box and emails to the Claims Administrator email inbox. BrownGreer has also received requests to update addresses directly from law firms. In each instance, BrownGreer records the change in address to the Master Mailing List and forwards the new information to Heffler for the mailing of a new Notice packet. As of October 14, 2014, BrownGreer had received 137 such direct requests for updates to Settlement Class Member addresses.

**35. *Maintaining a History of All Address Changes.*** BrownGreer retains a history of all records received while compiling the original Master Mailing list and while processing the updates described above. For each record in the history, BrownGreer retains these data points:

- (a) The Notice ID assigned to the individual;
- (b) The individual's full name;
- (c) The individual's complete address;
- (d) The individual's date of birth, where available;
- (e) The source of the address, including whether BrownGreer received it from an original data source, obtained it through data research or received it through one of the update methods; and
- (f) The date BrownGreer received the updated address.

**36. *Current Mailing List.*** As of October 14, 2014, BrownGreer has completed a total of 3,258 updates to the Master Mailing List. Included in these updates were 34 requests sent

directly to BrownGreer and 151 requests to Heffler from individuals not previously included on the Mailing List. BrownGreer added these individuals to the Master Mailing List bringing the total number of individuals to 34,167. BrownGreer received the other 3,068 updates to the mailing list from these sources:

- (a) NCOA updated addresses from SED;
- (b) Forwarding addresses from returned mail processed by SED;
- (c) LexisNexis data research performed by Heffler on undeliverable mail;
- (d) Updated addresses sent to BrownGreer by attorneys; and
- (e) Updated addresses sent to BrownGreer by Class Members.

#### **IV. THE OFFICIAL PUBLIC WEBSITE FOR THE PROPOSED SETTLEMENT**

**37. *Development and Launch of the Website.*** Pursuant to Section 4.1 of the Settlement Agreement, and in consultation with the Parties and Kinsella Media, BrownGreer developed a public, informational website, [www.NFLConcussionSettlement.com](http://www.NFLConcussionSettlement.com), to provide notice and additional courtesy information and services to the Settlement Class. Following the Court's entry of the Preliminary Approval Order on July 7, 2014, BrownGreer coordinated with the Parties to receive approval to open the informational website. On July 9, 2014, BrownGreer launched an initial version of the website to make available for viewing, printing, and downloading PDF versions of the Long-form Notice and Settlement Agreement. On July 14, 2014, BrownGreer launched the comprehensive version of the website that included the following five sections that remain on the site today: (1) Home, (2) Notice Materials, (3) Court Documents, (4) Frequently Asked Questions ("FAQs"),<sup>1</sup> and (5)

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<sup>1</sup> Kinsella Media provided BrownGreer the initial 40 FAQs and answers for inclusion on the website on July 15, 2014. The FAQs section of the website displayed the following language on July 14-15 while those materials were still being developed: "The parties to the Settlement are developing a set of Frequently Asked Questions with (Footnote continued on next page)"

Sign Up for Future Information. Attachment 5 to this Declaration presents screen captures of all five of these pages.

**38. The “Home” Page.** The “Home” page of the website serves as the site’s primary landing page and provides introductory and summary information regarding the Settlement. (Attachment 5 at 1.) From this central page, website visitors can route easily to any of the site’s four other pages using the top-anchored, horizontally oriented navigational bar. The “Home” page also includes a prominent button inviting interested Settlement Class Members to take advantage of the “Sign Up for Future Information” feature discussed more thoroughly in Paragraph 42 below. Additionally, on September 9, 2014, at the direction of the Parties, BrownGreer added a call-out box to the bottom of the page with detail on the Court-approved direct mail Notice campaign and an email address, [ClaimsAdministrator@NFLConcussionSettlement.com](mailto:ClaimsAdministrator@NFLConcussionSettlement.com), where Settlement Class Members can direct Notice-related or other questions.

**39. The “Notice Materials” Page.** The “Notice Materials” page, available at [www.NFLConcussionSettlement.com/NoticeMaterials.aspx](http://www.NFLConcussionSettlement.com/NoticeMaterials.aspx), provides links to viewable, printable, and downloadable PDF versions of the (1) Long-form Notice, (2) Summary Notice, and (3) Injury Definitions (Exhibit 1 to the Settlement Agreement). (Attachment 5 at 2.)

**40. The “Court Documents” Page.** The “Court Documents” page, available at [www.NFLConcussionSettlement.com/CourtDocs.aspx](http://www.NFLConcussionSettlement.com/CourtDocs.aspx), provides links to viewable, printable, and downloadable PDF versions of the (1) Class Action Settlement Agreement with Exhibits,

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answers. They will be available on this page soon.” Upon receipt of the FAQs set, BrownGreer immediately began coding the complete FAQs page and launched it in full on July 16, 2014.

(2) Injury Definitions,<sup>2</sup> (3) Preliminary Approval Order, (4) Preliminary Approval Memorandum Opinion, (5) Memorandum of Law in Support of Preliminary Approval, (6) Motion for Preliminary Approval, (7) Declaration of Layn R. Phillips, and (8) Declaration of Katherine Kinsella. (Attachment 5 at 3.) We will continue to add relevant materials to this page as they become available.

**41. *The “FAQs” Page.*** The “FAQs” page, available at [www.NFLConcussionSettlement.com/FAQ.aspx](http://www.NFLConcussionSettlement.com/FAQ.aspx), presents the complete set of initial FAQs and answers that the Parties and Kinsella Media developed from the Long-form Notice, grouped into the following twelve sections: (1) Basic Information, (2) Who Is Part Of The Settlement?, (3) The Baseline Assessment Program, (4) Monetary Awards, (5) Education Fund, (6) Remaining In The Settlement, (7) How To Get Benefits, (8) Excluding Yourself (Opting Out) From The Settlement, (9) The Lawyers Representing You, (10) Objecting To The Settlement, (11) The Court’s Fairness Hearing, and (12) Getting More Information. (Attachment 5 at 4.) In consultation with the Parties, BrownGreer also added a thirteenth section titled “Questions in Addition to Those in the Long-Form Notice” on September 9, 2014 that, as described more thoroughly in Paragraph 51 below, serves as a location for the posting of new FAQs and answers that present as the Program matures. Settlement Class Members can navigate directly to subject matters of interest or can browse the complete set of FAQs. Attachment 6 to this Declaration presents all 41 of the current FAQs and answers available on the official website.

**42. *The “Sign Up for Future Information” Page.*** The “Sign Up for Future Information” page, available at [www.NFLConcussionSettlement.com/SignUp.aspx](http://www.NFLConcussionSettlement.com/SignUp.aspx), allows

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<sup>2</sup> At the request of the Parties, BrownGreer included the “Injury Definitions” presented in Exhibit 1 to the Settlement Agreement on both the “Notice Materials” and “Court Documents” pages of the Settlement Program’s website.



visitors to the website to identify themselves as Retired NFL Players or representatives, counsel, or family members of Retired NFL Players and enter primary contact information – Name, Address, Phone Number, and Email Address – for the Program’s future use in providing additional information on how to register for the Settlement, if it is approved by the Court and that approval becomes final. (Attachment 5 at 5.) BrownGreer worked with the Parties to make clear on this page that this is *not* itself “registering” for the Settlement but is, instead, simply a courtesy function to request to receive information in the future from the Claims Administrator. The system allows law firms with multiple clients to sign up *en masse*. Additionally, as described in more detail in Paragraph 48 below, we also sign up individuals who mail correspondence to the Program requesting more information or who call the Program’s toll-free phone line requesting the same.

**43. Website Visitor Activity.** As of October 14, 2014, the Settlement Program’s website had received 62,989 unique visitors, with representation from all 50 states, as determined by IP Address. Those visitors included Retired NFL Players, Family Members of Retired NFL Players, and Counsel for Retired NFL Players, among others. As of October 14, 2014, 3,175 visitors utilized the “Sign Up for Future Information” feature and provided contact information for the Program to use. We will send emails and letters following Final Approval to provide notification of important dates and developments to those who signed up. Tables 1 and 2 in Attachment 7 to this Declaration present detailed information on website visitor activity and sign-ups.

**44. Secure Web-based Portal.** Pursuant to Article IV of the Settlement Agreement, if the Settlement Agreement receives Final Approval the informational website at [www.NFLConcussionSettlement.com](http://www.NFLConcussionSettlement.com) will become the primary engine for participation in

the Settlement Program. It will include a secure web-based portal for use by the Parties and Settlement Class Members and their designated counsel to accommodate various future phases of the Settlement Program, including Registration, Claim Package submission, and review outcome notification. In consultation with the Parties, BrownGreer will develop, establish, and maintain the secure portal and the informational pages of the website for the remainder of the Settlement Program.

**V. CLASS MEMBER INQUIRIES RECEIVED BY BROWNGREER**

**45. *Post Office Box.*** On July 2, 2014, BrownGreer set up a P.O. Box (P.O. Box 25369, Richmond, VA 23260) to which Settlement Class Members and others could send their Opt Out requests and general questions about the Settlement Agreement or the proposed Settlement Program. The Long-form Notice and the informational website instructed Settlement Class Members to direct their Opt Out requests to this P.O. Box. BrownGreer retrieves mail from this P.O. Box each business day and did so on Saturdays as well in the period surrounding the October 14, 2014 Opt Out Deadline.

**46. *Mail Intake and Storage.*** To maintain a permanent digital record of everything received in hard copy relating to the Settlement Agreement, BrownGreer intake specialists scan all materials received in the P.O. Box to create a PDF of each envelope and all its contents and saves that PDF to a secure server dedicated to this Program. BrownGreer has also retained all hard copy materials received in a secure storage room in one of BrownGreer's offices in Richmond, Virginia.

**47. *Claims Administrator Email Inbox.*** BrownGreer established the email address [ClaimsAdministrator@NFLConcussionSettlement.com](mailto:ClaimsAdministrator@NFLConcussionSettlement.com) to allow Settlement Class Members and others to direct general questions about the Settlement Agreement and proposed Settlement

Program (“CA Inbox”). This email address appears on the official public website of the Program. BrownGreer monitors the CA Inbox, responds to all inquiries within one business day, and converts each email exchange into a PDF and saves it to the secured server. The emails themselves are also preserved in live form in BrownGreer’s email archiver.

**48. *Automatic Sign Up to Receive More Information.*** BrownGreer adds each person who sends a letter to the Claims Administrator’s P.O. Box or an email to the CA Inbox seeking information about the Settlement to the database we maintain of persons who would like to receive more information about the Settlement Program at a later date, particularly when the Registration process opens and the deadline to register, without the person having to make that specific request. As of October 14, 2014, BrownGreer had automatically signed up 47 persons in this fashion to receive more information, 22 of whom who sent letters to the P.O. Box and 25 of whom emailed the CA Inbox. Table 2 in Attachment 7 to this Declaration presents more information on these persons.

**49. *Updates to the Notice Mailing List.*** If a Settlement Class Member sends a letter to the P.O. Box or the CA Inbox updating his or her name or address from how it appears on the Master Mailing List used in the Settlement Class Notice Plan , BrownGreer makes the necessary changes to the Master Mailing List.

**50. *Where the Inquiry Corresponds to Existing FAQ.*** If a Settlement Class Member poses a question that is answered by an existing FAQ, BrownGreer sends a response to the Settlement Class Member that includes the existing FAQ and urges the person to consult with his or her attorney, if represented. Attachment 8 is a template of BrownGreer’s normal response to such inquiries. As of October 14, 2014, BrownGreer had included an existing FAQ in 21 of the 50 letters and emails to which it had responded.

**51. *Where the Inquiry Does Not Correspond to Existing FAQ.*** If a Settlement Class Member poses a question that does not correspond to an existing FAQ, BrownGreer reviews the Settlement Agreement, the Long-Form Notice, and the Preliminary Approval Order and uses its program experience to draft a possible response. This draft response may include a proposed new FAQ. BrownGreer sends the original question and the draft response to Class Counsel and Counsel for the NFL Parties for their review and input. After Class Counsel and Counsel for the NFL Parties approve the draft response or provide changes, BrownGreer sends that response to the Settlement Class Member. If Class Counsel and Counsel for the NFL Parties approve a new FAQ, BrownGreer adds it to the “FAQs” page of the informational website as part of the section titled “Questions in Addition to Those in the Long-Form Notice.” As of October 14, 2014, Class Counsel and Counsel for the NFL Parties had approved and BrownGreer had added one new FAQ to the “FAQs” page of the informational website.

**52. *Total Number of Letters and Emails Received.*** As of October 14, 2014, BrownGreer had received a total of 66 letters and emails. Table 3 in Attachment 7 to this Declaration presents detailed information on the representation status of the individuals who sent letters and emails to BrownGreer, as well the number of letters or emails that did or did not require a response and the FAQs BrownGreer included in its responses.

**53. *Correspondence Not Requiring a Response.*** Of the 66 letters and emails received, BrownGreer did not respond to 15 of them. Those 15 letters and emails were as follows:

- (a) 10 letters and emails were from Settlement Class Members wishing to update their contact information who did not request a response;
- (b) Three letters and emails were from individuals who did not identify a specific question; and

(c) Two letters and emails were unsolicited advertisements for products or services.

**54. *Correspondence Requiring a Response.*** Of the 66 letters and emails received as of October 14, 2014, 51 of them warranted a response. Those 51 letters and emails concerned these subjects:

- (a) 26 letters and emails were from Settlement Class Members requesting confirmation that they are included in the Settlement Class;
- (b) 10 letters and emails were from Settlement Class Members seeking information about how to register for Settlement Benefits;
- (c) Five letters and emails were general requests for additional information;
- (d) Five letters and emails were from Settlement Class Members wishing to update their contact information who requested a response confirming the update;
- (e) Four letters and emails were from third party lienholders seeking information about potential payments to specific Settlement Class Members; and
- (f) Though the Long-Form Notice and the Settlement website instructed Settlement Class Members to mail their requests to Opt Out of the Settlement Class to the P.O. Box BrownGreer had established, one Settlement Class Member emailed her request to the CA Inbox. BrownGreer responded to the email and included this request to Opt Out of the Settlement Class in the Opt Out Report of the Claims Administrator filed with the Court on November 3, 2014.

**55. *Tracking all Inquiries.*** BrownGreer tracks all letters and emails it receives and its responses to store the correspondent's identifying information, including his or her name, address, and phone number, if included; his or her Notice ID if the correspondent appears on the Master Mailing List; attorney information, if included; and the name of the Retired NFL Football Player to whom the correspondent is related. We also track the receipt date of the correspondence, the nature of the inquiry, and the response date.

**56. *Transmittal of Copies to Class Counsel, Counsel to the NFL Parties, Kinsella Media, and Heffler.*** Each Monday, BrownGreer sends PDFs of the correspondence it received and responded to during the previous week, as well as its responses, in a Zip file to Class

Counsel, Counsel for the NFL Parties, and representatives of Kinsella Media and Heffler. In addition to emailing copies of correspondence, BrownGreer posts them on a secure internet access site available only to authorized representatives of Class Counsel and Counsel for the NFL Parties, referred to as the “Party Access Portal,” where they can be viewed and downloaded at any time.

## **VI. BROWNGREER’S EXPERIENCE WITH SIMILAR CLAIMS PROGRAMS**

**57. *Experience with Significant Personal Injury Settlement Programs.*** BrownGreer has extensive experience administering large-scale settlement programs that provide benefits of various types to injured persons. We have had the honor of serving courts, class members, and parties in many of the nation’s most significant personal injury settlement programs, including the \$4.85 billion Vioxx Personal Injury Resolution Program (claims of heart attack and stroke relating to the painkiller Vioxx; 60,000 claimants), the \$1.15 billion Sulzer Knee Prosthesis Settlement Program (revision surgery and other claims arising from an allegedly defective hip replacement device; 27,000 claimants), the \$3.55 billion “Fen-Phen” Diet Drugs Settlement Program (claims of heart valve damage, stroke and other complications from use of the Diet Drugs; 600,000 claimants), and the \$3 billion Dalkon Shield Claimants Trust (claims of pelvic inflammatory disease, spontaneous abortions and other injuries from use of an intrauterine contraceptive device; 400,000 claimants). We currently serve in the ongoing \$2.475 billion ASR Hip Implant Settlement Program (revision surgery and other claims arising from an allegedly defective hip replacement device; 7,500 claimants), the \$650 million Pradaxa Settlement Program (claims of death and bleeding events from use of a blood thinning medication; 4,800 claimants), and the \$100 million NuvaRing Settlement Program (arterial and venous thromboembolism and other injuries relating to a contraceptive device; 3,800 claimants), among

many others. These past and present programs are similar to the proposed Settlement here not only in terms of size and scope, but also in terms of purpose and plan. Each provided an avenue for class members alleging a range of personal injuries in progressive levels of severity to apply for defined benefits, such as a cash payment or an opportunity for medical monitoring within an approved network of physicians. Our experience with these and other multifaceted personal injury claims resolution programs informs and facilitates our handling and implementation of each new program. We simplify processes and employ systems and services that reduce the effort required of claimants and their counsel in submitting and completing claims, and that increase their understanding of and satisfaction with the program.

**58. *The Settlement Includes Features of a Successful Benefits Program.*** The proposed Settlement uses the proven components of a successful claims resolution program of its size and type. Programs of this scale and nature require well-planned and effective practices for claimant interaction with the program, thorough and efficient procedures for analyzing claimant records, a clear framework for making eligibility and award determinations, and reliable payment and anti-fraud processes. This Settlement Agreement contains key and routine design elements that leverage the successes of historic resolution programs like those identified in Paragraph 57 above, that permit a claims administrator to implement the program and the parties' intentions correctly, including:

- (a) Registration:** It is advisable to inject a stage in the program during which claimants will come forward to be identified and provide basic information pertinent to eligibility in the program, as this Settlement Agreement provides. This allows the parties, the Court and the claims administrator to know the universe of persons who may present claims and to use the information provided to facilitate the ease of submission at later stages and prevent fraudulent duplicate claims or claims from fictitious persons.
- (b) Use and Exposure:** The settlement agreement must define the persons who are eligible to seek benefits and how they prove use of the product in question or

- exposure to the events giving rise to the claim, as this Settlement Agreement defines the playing history and required proof to be an eligible Settlement Class Member.
- (c) **Injury Categorization:** The best programs specify the categories of injuries that will be compensable, the medical conditions that place a claimant in a particular category, and the proof required of such conditions, including the types of physicians and timing of diagnoses that can be used to establish eligibility.
  - (d) **Claim Form Submission:** Class Members who wish to assert claims must be required to assert that claim in a claim form that provides essential information on the claimant, use and exposure to the product or event involved in the program and injuries experienced. This process is best left for the claims administrator to design efficiently, working with the parties, to permit completion of the application in a user-friendly online process, using information on the claimant obtained during the registration process and eliciting only the information essential to the eligibility determination under the criteria codified in the Settlement Agreement.
  - (e) **Physicians Network:** Establishing an accessible group of physicians who can provide testing under proven diagnostic criteria in a controlled environment is a major settlement benefit and can be administered successfully. For example, the network of cardiologists made available under the Diet Drugs settlement provided echocardiograms and consultations to over 205,000 class members.
  - (f) **Deadlines:** A settlement plan should include clear and administrable deadlines for claimants and the claims administrator to act. Such deadlines enhance the progress of the program and create legitimate expectations of timing and performance.
  - (g) **Completing Claims:** A successful program incorporates a notice and deficiency cure process with a right to appeal to permit the completion of claims missing required information.
  - (h) **Fraud:** Requiring more extensive audits of claims randomly and as indicated by the materials submitted on a claim are effective measures to detect and deter fraudulent claim submissions.
  - (i) **Reporting:** The Claims Administrator should provide, as the Settlement Agreement requires, regular reports to the Court and the Parties on the claims received and the progress of administration.

These core resolution program components and others outlined in the Settlement Agreement posture this Settlement for successful implementation.

**59. *Experience with the Proposed Settlement's Design and Requirements.***

BrownGreer has deep experience designing and implementing these elements of a successful



claims facility and the many other detailed components necessary for effective resolution of significant personal injury settlements like this one.

- (a) ***Combined Practitioner’s and Administrator’s Mindset.*** Our firm includes past federal court law clerks, national and international law firm litigators, and other experienced former practitioners whose practical experiences position us uniquely to understand the needs and aims of the Court and the Parties. This skillset is particularly important in court-supervised class action settlements like this one, where a formal legal process controls the timing and deliverables required to launch and close a successful program. Our firm’s attorneys work intimately with our internal teams of analysts, project managers, claimant support agents, software programmers, and claims reviewers, allowing us to combine seasoned lawyering with a pragmatic understanding of the need for organized and centralized information and data, effective communication, and the administrative processes necessary to resolve multiple claims efficiently.
- (b) ***User-Friendly Interfaces and Class Member Exchanges.*** We routinely develop processes and platforms to receive claims and supporting documentation, and we do so with an intentional eye toward offering intuitive and seamless experiences to those who interact with the programs we administer. We create interactive databases that allow for instantaneous exchange of information, eliminating costs associated with data entry delays, thereby increasing the efficiency and ease of sharing critical information. We establish secure web-based portals that allow for real-time data capture, ad hoc reporting by external users, and automatic notification of deadlines accompanied by email blasts alerting parties to these deadlines and requirements. With a commitment to exceptional customer service and unceasing transparency, we support *pro se* and represented claimants alike and offer them real-time views into the status and progression of their claims. We carry Rule 23’s “plain language” dictate through to all of our interactions with claimants, carefully crafting call center scripts, portal user guides, and written notices for eligibility and award determinations. For all class members who are represented by their personal counsel, we establish dedicated points of contact for each such law firm so that every law firm receives individualized attention with personal historic knowledge of the status and nature of that firm’s claimant inventory.
- (c) ***Effective and Administrable Procedures.*** In every case, we draw upon the Parties’ and Court’s express guidance given in the Settlement Agreement and related orders. Where that express guidance affords discretion to the claims administrator or when unique situations arise beyond express guidance given, we develop Claims Administration Procedures (“CAPs”) to implement the Settlement Agreement. We memorialize such CAPs following thorough input from the Parties, just as we will do in this Program alongside development of related procedures for the Baseline Assessment Program.

- (d) **Quality Assurance.** BrownGreer employs a variety of market-leading strategies to measure and monitor internal quality and efficiencies in the administration of settlement programs. We constantly analyze program data and, if needed, make adjustments based on the analysis of that data to increase output speeds, streamline processes and maximize efficiencies. All employees receive thorough training, and each employee completes a phased battery of knowledge-based tests throughout the program to help our management teams identify potential opportunities for supplemental training. BrownGreer equips each claims reviewer with access to detailed FAQs and access to electronic Q&A systems that allow reviewers to ask questions and receive answers quickly and efficiently, driving individual claims to correct conclusions and building a knowledge base for future claims handling in the program. We also build discrepancy triggers into every review platform to alert the quality assurance team to potentially questionable data whenever there is an opportunity for human error in the process. We design our systems to leverage infallible computer-based calculations and minimize human touch, but where human touch is required, we challenge those data points to increase accuracy. Any claims that trigger a discrepancy metric receive a specialized quality assurance review. Our dedicated special investigations team uses a variety of techniques to prevent the payment of any fraudulent claims, and we develop case-specific fraud prevention mechanisms and additional processes, such as the use of a positive pay reconciliation approach.
- (e) **Qualified MAF Physicians.** BrownGreer has significant experience in working with physicians and networks of physicians of many different specialties and disciplines as prescribing or treating physicians who have provided medical care to claimants in programs, or as experts, medical advisory panels or consultants in the design of medical eligibility criteria or review findings on submitted claims in a compensation program.
- (1) As one example of such work, in *In re: Diet Drugs (Phentermine/Fenfluramine/Dexfenfluramine) Products Liability Litigation*, Case No. 99-20593, MDL No. 123 (E.D. Pa), we serve as Wyeth's liaison to the trust facility created under the national class action settlement of heart damage claims relating to the "fen-phen" diet drugs. Beginning in 2000, BrownGreer has been involved in the monitoring of the physicians network performing echocardiograms in the screening program created by the Settlement Agreement. We monitor the credentials and performance of the Board-certified cardiologists with Level 2 training in echocardiography used by the trust for the medical review of claims and the Level 3 trained Board-certified cardiologists used by the supervisory court as its Technical Advisors. We work with Class Counsel in the selection of the three highly credentialed and Level 3 trained Board-certified cardiologists who serve on a monitoring panel appointed by the court and to implement the supervisory role played by that body. Throughout that program, we have measured and monitored the diagnoses and submissions of thousands of cardiologists, surgeons and other physicians who rendered diagnoses for the claimants involved in the settlement program. In this role, we analyzed diagnoses

rendered by these cardiologists to detect outliers and assisted the client in developing a plan for assuring consistency of the diagnostics. We continuously monitor cardiologist findings involving complex medical criteria to identify opportunities for clarifying the criteria and standards through education and training.

- (2) We are accustomed to analyzing the credentials and qualifications of physicians to serve in roles needed by a settlement program, such as the selection of Qualified MAF Physicians under Section 6.5 of the Settlement Agreement, and are adept at monitoring the performance and integrity of such physicians through sophisticated data analytics and work product analyses. In this program, we will analyze the geographic locations, results and performance of each Qualified BAP Physician to assess his or her suitability for services as a Qualified MAF Physician, as well as our own analysis of the education, training, experience, credentials, insurance coverages, ability to provide necessary examinations in a timely manner, and geographic proximity to Retired NFL Football Players to assemble and keep fresh and current the inventory of Qualified MAF Physicians eligible to provide Qualifying Diagnoses in this program. Establishing a pre-screened and monitored network of providers will facilitate the uniform and proper application of the diagnoses criteria in the Settlement Agreement, minimize the incidents of non-compliant diagnoses, and assist in preventing inaccurate or fraudulent claim submissions.

All of the above best practices serve to make each resolution program as accessible and manageable as possible to all relevant stakeholders, and deploying these strategies in this NFL Concussion Settlement Program will engender effective, efficient, and user-friendly experiences from program launch to close.

I, Orran L. Brown, declare under penalty of perjury pursuant to 28 U.S.C. § 1746 that the foregoing is true and correct. Executed on this 12<sup>th</sup> day of November, 2014.



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Orran L. Brown

# ATTACHMENT 1

# ORRAN L. BROWN



## Education

J.D. *cum laude*, 1981 (research assistant to Professor Lloyd Weinreb in criminal law and process)

Hampden-Sydney, Virginia. B.A. *summa cum laude*, Government and Foreign Affairs, 1978 (GPA 4.0 out of 4.0; Co-Valedictorian; Chairman of the Student Court; Baker Scholar; Jefferson Scholar; Phi Beta Kappa; Omicron Delta Kappa; Pi Sigma Alpha; Eta Sigma Phi; received Algernon Sydney Sullivan Medallion for Leadership at graduation)

2002 – Present. Partner and Founder of a law firm that specializes in MDL and multiple claim litigation and the legal and administrative aspects of the design, approval, and implementation of claims facilities to provide damages payments, medical monitoring, or other benefits for the resolution of mass claims through class action settlement, bankruptcy reorganization, voluntary agreement, or other aggregation vehicles, and in serving as or representing the trustees or directors of such facilities.

1999 – 2002. Partner. Founder and Director of the Mass Claims Resolution Group and member of the firm's Executive Committee. Specialized in mass tort, class action, and other group claims facility matters, proceedings and appeals. Advised management, trustees, and claims administrators



on the efficient design and operation of group claims facilities, strategies for the successful resolution of claims, the negotiation and drafting of resolution plans, legal proceedings to obtain court approval, and compliance with the agreements or court orders governing the claims resolution process. Also handled several litigation matters.

**Adjunct Professor, University of Richmond School of Law.**

1997 – 2004. Taught an upper-level course on MDL proceedings and complex litigation from 2001 through 2004. Taught trial and appellate practice from 1997 through 2001.

**Outside Counsel to the Dalkon Shield Claimants Trust, Richmond, Virginia.**

1990 – Present. Served as the primary outside general counsel to the \$3.5 billion trust established in the Chapter 11 bankruptcy proceeding of the A. H. Robins Co. to handle over 400,000 personal injury claims arising from the Dalkon Shield IUD. Advised the Trust's management, trustees, inside counsel, and other outside counsel in the United States and other countries on the legal and managerial aspects of the Trust's fiduciary duties, operations (including employment issues and the Trust's lease, banking, investment and other contractual relationships), claims processing arrangements, and coordination and design of Alternative Dispute Resolution, arbitration, and trial proceedings on Dalkon Shield Claims. Represented the Trustees in the judicial proceedings in the bankruptcy and district courts, and many appeals to the Court of Appeals for the Fourth Circuit, arising out of implementing the bankruptcy Plan. Performed the same role for the two other trust funds created to handle Dalkon Shield Claims. Handled the steps and proceedings to close the three trusts and create insurance coverage and an escrow agent for run-off issues until 2008.

**Christian, Barton, Epps, Brent & Chappell, Richmond, Virginia.**

1986 – 1995. Partner and Member of the firm's Executive Committee. Handled securities fraud class actions, employment, products liability and commercial litigation in state and federal courts in Virginia and elsewhere. Counseled clients on employment law issues. Arbitrator for the American Arbitration Association for securities fraud and construction cases. Joined the partnership in 1990. Began representing the Dalkon Shield Claimants Trust in 1990 while still a member of this firm.

**Litigator in Houston, Texas.**

1982 – 1986. First with Liddell, Sapp, Zively, Brown & LaBoon and then with Miller, Keeton, Bristow & Brown after the Liddell, Sapp Litigation Chairman moved to that firm. General litigation matters, including the *Pennzoil v. Texaco* suit arising from Texaco's acquisition of Getty Oil. Tied for the highest score on the February 1983 Texas bar examination.

**Law Clerk to the Hon. Robert R. Merhige, Jr.**

1981 – 1982. United States District Court for the Eastern District of Virginia, Richmond, Virginia.

**Professional Activities**

- Virginia State Bar
- State Bar of Texas (Inactive status)



## Bar Admissions

### *Selected Speaking and Writing*

## *Personal*

# ATTACHMENT 2



NOVEMBER 10, 2014

JA4190





# BROWNGREER PLC

## OUR FIRM

BrownGreer PLC is a premier claims resolution firm that assists clients with the legal and administrative aspects of the design, approval and implementation of claims facilities to provide damages payments, medical monitoring or other benefits for the resolution of mass claims. We also develop and implement the notice campaigns and other communications to the potential and actual claimants involved in such programs. Members of our firm also serve as or represent the trustees or directors of claims facilities.

BrownGreer was formed in 2002, but our principals, Orran Brown and Lynn Greer, have been at the center of some of the most significant multiple claims resolutions for more than 25 years. Since that time, our mission has been to fulfill the responsibilities of any settlement program to the satisfaction of all involved parties, including claimants, counsel, courts and other governmental entities.

**“[BrownGreer] is probably one of the best outfits in the country to handle this kind of a disposition of funds and management of a class action.”**

The Honorable John A. Gibney, Jr.  
U.S. District Judge, Eastern District of Virginia  
*Morgan v. Richmond School of Health and Technology, Inc., No. 3:12-cv-00373-JAG,*  
April 23, 2013

As a firm of lawyers, analysts, software programmers and claims reviewers, we combine highly skilled lawyering with a practical understanding of the need for organized and centralized information and data, effective communication, and the administrative processes necessary to resolve multiple claims efficiently.

**“[T]he expedited resolution of approximately fifty thousand personal injury claims could not have been achieved without the extraordinary effort and outstanding work put forth by BrownGreer PLC in its role as Claims Administrator.”**

The Honorable Eldon E. Fallon  
U.S. District Judge, Eastern District of Louisiana  
*In re Vioxx Products Liability Litigation, MDL Docket No. 1657, December 9, 2011*

We administer and process claims for settlements arising from class actions, multidistrict litigation, government enforcement proceedings and other aggregation vehicles. Our court-supervised and voluntary settlement program experience covers causes of action including antitrust, bankruptcy, consumer protection, labor and employment, and products liability.

Our firm handles complex claims administration programs in a variety of industry contexts, including consumer products, food and beverage, financial services, pharmaceuticals and medical devices, and retail.

## OUR SERVICES

- ▶ Settlement Agreement Consultation
- ▶ Notice Administration
- ▶ Claims Processing
- ▶ Payment Programs
- ▶ Program Communications Management
- ▶ Claims Administration Audits
- ▶ Electronic Discovery
- ▶ Special Master



## SELECT EXPERIENCE

| SELECT PERSONAL INJURY SETTLEMENT PROGRAM EXPERIENCE |                                                                                                                                                                                                                                                                                                      |                                                   |                      |                                        |
|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|----------------------|----------------------------------------|
|                                                      | PROGRAM DESCRIPTION                                                                                                                                                                                                                                                                                  | ROLE                                              | APPROX. PROGRAM SIZE | APPROX. SETTLEMENT FUND                |
| 1.                                                   | <i>In re Vioxx Products Liability Litigation</i> , MDL Docket No. 1657 (E.D. La.). Class action settlement to resolve claims arising from the use of prescription painkillers.                                                                                                                       | Claims Administrator                              | 60,000 Claimants     | \$4.85 Billion                         |
| 2.                                                   | <i>In re Diet Drugs (Phentermine/Fenfluramine/Dexfenfluramine) Products Liability Litigation</i> , MDL Docket No. 1203 (E.D. Pa.). Class action settlement to resolve claims arising from the “Fen-Phen” diet drugs.                                                                                 | Liaison for the Defendant to the Settlement Trust | 600,000 Claimants    | \$3.55 Billion                         |
| 3.                                                   | <i>In re A.H. Robins Company Inc., Debtor (In re Dalkon Shield Claimants Trust)</i> , MDL Docket No. 211 (Bankr. E.D. Va.). Class action settlement created in the Chapter 11 bankruptcy proceeding of the A.H. Robins Company to resolve claims arising from the Dalkon Shield intrauterine device. | Counsel to the Settlement Trust                   | 400,000 Claimants    | \$3 Billion                            |
| 4.                                                   | <i>In re DePuy Orthopaedics, Inc., ASR Hip Implant Products</i> , MDL Docket No. 2197 (N.D. Ohio). Voluntary settlement program for claims relating metal-on-metal hip implant devices.                                                                                                              | Claims Administrator                              | 7,500 Claimants      | \$2.475 Billion                        |
| 5.                                                   | <i>In re Diet Drugs (Phentermine/Fenfluramine/Dexfenfluramine) Products Liability Litigation</i> , MDL Docket No. 1203 (E.D. Pa.). Voluntary settlement program to resolve opt outs from the class action settlement of claims arising from the “Fen-Phen” diet drugs.                               | Claims Administrator                              | 66,000 Claimants     | \$2.63 Billion                         |
| 6.                                                   | Confidential voluntary settlement program of claims arising from the use of a prescription medication.                                                                                                                                                                                               | Claims Administrator                              | 12,000 Claimants     | Fund Uncapped; \$1.4 Billion Disbursed |
| 7.                                                   | <i>In re Sulzer Orthopedics and Knee Prosthesis Products Liability Litigation</i> , MDL Docket No. 1401 (N.D. Ohio). Class action settlement of claims relating to hip and knee implants.                                                                                                            | Claims Administrator                              | 27,000 Claimants     | \$1.15 Billion                         |
| 8.                                                   | <i>In re National Football League Players’ Concussion Injury Litigation</i> , MDL Docket No. 2323 (E.D. Pa.). Class action settlement to resolve claims the National Football League ignored and concealed risks of repetitive traumatic brain injuries.                                             | Claims Administrator                              | TBD                  | Fund Uncapped                          |
| 9.                                                   | <i>In re Pradaxa (Dabigatran Etxilate) Products Liability Litigation</i> , MDL Docket No. 2385 (S.D. Illinois). Class action settlement to resolve claims arising from the use of blood thinning medication.                                                                                         | Claims Administrator                              | 4,800 Claimants      | \$650 Million                          |



### SELECT PERSONAL INJURY SETTLEMENT PROGRAM EXPERIENCE

|     | PROGRAM DESCRIPTION                                                                                                                                                                                                                                                                                     | ROLE                                  | APPROX. PROGRAM SIZE     | APPROX. SETTLEMENT FUND                |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|--------------------------|----------------------------------------|
| 10. | Confidential voluntary settlement program of claims arising from the use of a prescription medication.                                                                                                                                                                                                  | Claims Administrator                  | 2,700 Claimants          | Fund Uncapped; \$279 Million Disbursed |
| 11. | <i>In re Guidant Implantable Defibrillators Products Liability Litigation Settlement, MDL Docket No. 1708 (D. Minn.).</i> Class action settlement to resolve claims related to a medical device company's cardiac resynchronization therapy devices, implantable cardiac defibrillators and pacemakers. | Advised Defendant and Defense Counsel | 26,000 Class Members     | \$240 Million                          |
| 12. | <i>In re Nuvaring Products Liability Litigation, MDL Docket No. 1964 (W.D. Mo.).</i> Class action settlement to resolve claims concerning a contraceptive device.                                                                                                                                       | Claims Administrator                  | 3,800 Claimants          | \$100 Million                          |
| 13. | <i>In re Phenylpropanolamine (PPA) Products Liability Litigation, MDL Docket No. 1407 (W.D. Wash.).</i> Class action settlement trust established to resolve claims related to an over-the-counter weight loss product.                                                                                 | Claims Administrator                  | 500 Claimants            | \$60 Million                           |
| 14. | <i>In re Yasmin and YAZ (Drospirenone) Marketing, Sales Practices and Products Liability Litigation, MDL Docket No. 2100 (S.D. Ill.).</i> Class action settlement to resolve claims related to a prescription oral contraceptive.                                                                       | Claims Administrator                  | 9,000 Claimants          | \$24 Million                           |
| 15. | <i>In re OxyContin Litigation - All Cases, No. 2002-CP-18-1756 (Dorchester County S.C. Ct.).</i> Class action settlement by a pharmaceutical company regarding a prescription pain killer.                                                                                                              | Notice and Claims Administrator       | 3,600 Class Members      | \$4.25 Million                         |
| 16. | <i>In re Seroquel Products Liability Litigation, MDL Docket No. 1769 (M.D. Fla.).</i> Multidistrict litigation proceedings involving the antipsychotic prescription drug Seroquel.                                                                                                                      | Special Master; Project Manager       | Company Did Not Disclose | Company Did Not Disclose               |



### SELECT ECONOMIC LOSS SETTLEMENT PROGRAM EXPERIENCE

|     | PROGRAM DESCRIPTION                                                                                                                                                                                                                                                                                                                  | ROLE                                                | APPROX. PROGRAM SIZE     | APPROX. SETTLEMENT FUND                                     |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|--------------------------|-------------------------------------------------------------|
| 1.  | <b><i>Gulf Coast Claims Facility.</i></b> Voluntary claims program to resolve economic loss and physical injury claims arising from the April 20, 2010 oil spill in the Gulf of Mexico.                                                                                                                                              | Claims Administrator;<br>Transition Coordinator     | 600,000 Claimants        | \$20 Billion cap; \$6.5 Billion disbursed                   |
| 2.  | <b><i>In re Oil Spill by the Oil Rig "Deepwater Horizon" in the Gulf of Mexico, on April 20, 2010, MDL Docket No. 2179 (E.D. La.)</i></b> . Class action settlement to resolve economic loss and property damage claims arising from the April 20, 2010 oil spill in the Gulf of Mexico.                                             | Claims Administrator                                | 220,000 Claimants        | Uncapped Fund; \$3.9 Billion disbursed                      |
| 3.  | <b><i>In re Black Farmer's Discrimination Litigation, No. 08-mc-0511 PLF (D.D.C.)</i></b> . Class action settlement to resolve claims of discrimination against African-American farmers by the U.S. Department of Agriculture regarding farm loans and loan servicing for claimants who had missed deadlines in a prior settlement. | Claims Review and Evaluation                        | 40,000 Claimants         | \$1.25 Billion                                              |
| 4.  | <b><i>United States Securities and Exchange Commission v. American International Group, Inc., No. 06-Civ. 100-LAP (S.D.N.Y.)</i></b> . Securities enforcement action settlement between the SEC and a multinational insurance corporation over allegations of accounting fraud and related shareholder litigation.                   | Audited the Claims Administrator                    | 260,000 Class Members    | \$843 Million                                               |
| 5.  | <b><i>In re Genetically Modified Rice Litigation, MDL Docket No. 1811 (E.D. Mo.)</i></b> . Voluntary claims program to resolve claims concerning genetically modified rice and crop values.                                                                                                                                          | Claims Administrator                                | 12,000 Claimants         | \$750 Million                                               |
| 6.  | <b><i>In re Chinese-Manufactured Drywall Products Liability Litigation, MDL Docket No. 2047 (E.D. La.)</i></b> . Class action settlement for the remediation of homes containing defective drywall manufactured in China.                                                                                                            | Claims Administrator;<br>Lynn Greer, Special Master | 25,000 Claimants         | Blend of Uncapped and Capped Funds; \$395 Million disbursed |
| 7.  | <b><i>United States v. National Treasury Employees Union, No. 93-1170 (D.C. App.)</i></b> . Class action settlement between a federal employees' union and the U.S. Government for back payment of wages.                                                                                                                            | Trustee of Settlement Trust                         | 212,000 Class Members    | \$173 Million                                               |
| 8.  | <b><i>Blando v. Nextel West Corp., No. 02-0921-FJG (W.D. Mo.)</i></b> . Class action settlement by a wireless telecommunications provider to resolve claims under Missouri law involving "cost recovery fees" charged to customers.                                                                                                  | Advisor to the Court                                | 5,000,000 Class Members  | \$165 Million                                               |
| 9.  | <b><i>In re Capital One Telephone Consumer Protection Act Litigation, MDL Docket No. 2416 (N.D. Ill.)</i></b> . Class action settlement to resolve claims arising from alleged violations of the Telephone Consumer Protection Act.                                                                                                  | Claims Administrator                                | 17,500,000 Class Members | \$75.4 Million                                              |
| 10. | <b><i>In re Vioxx MDL Settlement Agreement Related to Consumer Class Actions, MDL Docket No. 1657 (E.D. La.)</i></b> . Class action settlement to resolve consumer protection claims arising from the marketing of prescription painkillers.                                                                                         | Claims Administrator                                | 8,000 Claimants          | \$23 Million                                                |



### SELECT ECONOMIC LOSS SETTLEMENT PROGRAM EXPERIENCE

|     | PROGRAM DESCRIPTION                                                                                                                                                                                                                                                                                         | ROLE                            | APPROX. PROGRAM SIZE    | APPROX. SETTLEMENT FUND |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-------------------------|-------------------------|
| 11. | <i>Yarger v. ING Bank, FSB, No. 11-154-LPS (D. Del.)</i> . Class action settlement to resolve claims related to advertising fixed rate mortgages under Delaware consumer law.                                                                                                                               | Notice and Claims Administrator | 115,000 Class Members   | \$20 Million            |
| 12. | <i>United States of America v. Capital One, N.A., No. 1:12-cv-828 (E.D. Va.)</i> . Consent orders between a financial services company and (1) the Department of Justice and (2) the Office of the Comptroller of the Currency to resolve alleged violations of the Servicemembers Civil Relief Act.        | Notice and Claims Administrator | 44,000 Claimants        | \$15 Million            |
| 13. | <i>Spinelli v. Capital One Bank (USA), No. 8:08-cv-132 (M.D. Fla.)</i> . Class action settlement by a financial services company with credit card holders to resolve claims under the Truth in Lending Act.                                                                                                 | Notice and Claims Administrator | 9,000,000 Class Members | \$5 Million             |
| 14. | <i>Hankins v. Carmax Inc., No. 03-C-07-005893 CN (Baltimore County Md. Cir. Ct.)</i> . Class action settlement to resolve claims that a retail car company sold used vehicles without disclosing that the vehicles had been used previously as short-term rentals.                                          | Notice and Claims Administrator | 7,300 Class Members     | \$8 Million             |
| 15. | <i>Cohen v. Warner Chilcott Public Ltd. Co., No. 1:06-cv-00401-CKK (D.D.C.)</i> . Class action settlement to resolve antitrust claims against two pharmaceutical companies regarding the sale of an oral contraceptive.                                                                                     | Notice Administrator            | 2,000,000 Class Members | \$6 Million             |
| 16. | <i>Morgan v. Richmond School of Health and Technology, Inc., No. 3:12-cv-00373-JAG (E.D. Va.)</i> . Class action settlement by a for-profit vocational college to resolve claims under the Equal Credit Opportunity Act, Title VI of the Civil Rights Act of 1964 and the Virginia Consumer Protection Act. | Notice and Claims Administrator | 4,200 Class Members     | \$5 Million             |
| 17. | <i>Rogers v. City of Richmond, Virginia, No. 3:11-cv-00620 (E.D. Va.)</i> . Class action settlement under the Fair Labor Standards Act and Virginia law involving current and former city police officers alleging unpaid overtime wages.                                                                   | Claims Administrator            | 600 Claimants           | \$4.6 Million           |
| 18. | <i>Llewellyn v. Big Lots Stores, Inc., No. 09-cv-5085 (E.D. La.)</i> . Class action settlement by a retailer to resolve claims under the Fair Labor Standards Act regarding the classification of assistant store managers.                                                                                 | Claims Administrator            | 200 Class Members       | \$4 Million             |
| 19. | <i>Herron v. CarMax Auto Superstores, Inc., No. 2006-CP-02-1230 (Aiken County S.C. Jud. Dist.)</i> . Class action settlement to resolve claims related to document processing fees charged to customers by a car dealer.                                                                                    | Notice and Claims Administrator | 27,000 Class Members    | \$3.8 Million           |
| 20. | <i>Collins v. Sanderson Farms, Inc., No. 2:06-cv-02946 (E.D. La.)</i> . Class action settlement by a poultry processing company to resolve claims under the Fair Labor Standards Act regarding employee compensation for time spent donning/doffing protective equipment.                                   | Notice and Claims Administrator | 21,000 Class Members    | \$3.1 Million           |





### SELECT ECONOMIC LOSS SETTLEMENT PROGRAM EXPERIENCE

|     | PROGRAM DESCRIPTION                                                                                                                                                                                                                                                                                    | ROLE                            | APPROX. PROGRAM SIZE    | APPROX. SETTLEMENT FUND |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-------------------------|-------------------------|
| 21. | <i>Nader v. Capital One Bank (USA)</i> , No. CV-12-01265-DSF (RZx) (C.D. Cal.). Class action settlement by a financial institution to resolve claims under state privacy and wiretapping laws concerning the alleged recording of outbound customer service calls.                                     | Notice and Claims Administrator | 1,800,000 Class Members | \$3 Million             |
| 22. | <i>In re Children's Ibuprofen Oral Suspension Antitrust Litigation</i> , No. 1:04-mc-0535 (D.D.C.). Class action settlement to resolve claims of antitrust violations by two manufacturers of over-the-counter children's pain relievers.                                                              | Notice Administrator            | 10,000 Class Members    | \$3 Million             |
| 23. | <i>United States of America v. Chevy Chase Bank, F.S.B.</i> , No. 1:13-cv-1214 (E.D. Va.). Consent decree between a financial services company and a federal regulatory agency involving allegations under the Equal Credit Opportunity and Fair Housing Acts.                                         | Notice and Claims Administrator | 3,500 Class Members     | \$2.85 Million          |
| 24. | <i>Samuel v. EquiCredit Corp.</i> , No. 00-cs-6196 (E.D. Pa.). Class action settlement by a financial services institution to resolve claims under the Real Estate Settlement Procedures Act regarding the application of loan proceeds to pay mortgage broker fees.                                   | Notice and Claims Administrator | 13,000 Class Members    | \$2.5 Million           |
| 25. | <i>Hall v. Capital One Auto Finance, Inc.</i> , No. 1:08-cv-01181 (N.D. Ohio). Class action settlement by a financial services company to resolve claims related to automobile repossession under Ohio consumer statutes.                                                                              | Notice and Claims Administrator | 3,400 Class Members     | \$1.5 Million           |
| 26. | <i>Watts v. Capital One Auto Finance, Inc.</i> , No. CCB-07-03477 (D. Md.). Class action settlement by a financial services company to resolve claims related to automobile repossession under Maryland consumer statutes.                                                                             | Notice and Claims Administrator | 2,700 Class Members     | \$990,000               |
| 27. | <i>Churchill v. Farmland Foods, Inc.</i> , No. 4:06-cv-4023 (C.D. Ill.). Class action settlement by a pork processing company to resolve claims under the Fair Labor Standards Act and Illinois law regarding employee compensation for time spent donning/doffing protective equipment.               | Notice and Claims Administrator | 2,300 Class Members     | \$980,000               |
| 28. | <i>Polanco v. Moyer Packing Company</i> , No. C.P., 1852 (Philadelphia County Pa.) Class action settlement by a beef processing company to resolve claims under the Fair Labor Standards Act and Pennsylvania law regarding employee compensation for time spent donning/doffing protective equipment. | Notice and Claims Administrator | 4,500 Class Members     | \$850,000               |
| 29. | <i>Bessey v. Packerland Plainwell, Inc.</i> , No. 4:06-cv-0095 (W.D. Mich.). Class action settlement by a pork processing company to resolve claims under the Fair Labor Standards Act and Michigan law regarding employee compensation for time spent donning/doffing protective equipment.           | Notice and Claims Administrator | 3,000 Class Members     | \$700,000               |



### SELECT ECONOMIC LOSS SETTLEMENT PROGRAM EXPERIENCE

|     | PROGRAM DESCRIPTION                                                                                                                                                                                                                                                                                   | ROLE                            | APPROX. PROGRAM SIZE | APPROX. SETTLEMENT FUND |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|----------------------|-------------------------|
| 30. | <b><i>Santiago v. GMAC Mortgage Group, Inc., No. 784574 (E.D. Pa.)</i></b> . Class action settlement by a financial services company to resolve claims under the Real Estate Settlement Procedures Act concerning charges for mortgage settlement services.                                           | Notice and Claims Administrator | 84,000 Class Members | \$650,000               |
| 31. | <b><i>Contreras v. PM Beef Holdings, LLC, No. 07-CV-3087 (D. Minn.)</i></b> . Class action settlement by a beef processing company to resolve claims under the Fair Labor Standards Act and Minnesota law for employee compensation for time spent donning/doffing protective equipment.              | Notice and Claims Administrator | 3,000 Class Members  | \$500,000               |
| 32. | <b><i>Morales v. Greater Omaha Packing Co. Inc., No. 8:08-cv-0161 (D. Neb.)</i></b> . Class action settlement by a beef processing company to resolve claims under the Fair Labor Standards Act and Nebraska law regarding employee compensation for time spent donning/doffing protective equipment. | Notice and Claims Administrator | 4,000 Class Members  | \$490,000               |
| 33. | <b><i>Graham v. Capital One Bank (USA), N.A., 8:13-cv-00743 (C.D. Cal.)</i></b> . Class action settlement related to claims under the California Unfair Competition Law regarding alleged improper disclosures and charges assessed on credit card accounts.                                          | Notice and Claims Administrator | 22,500 Class Members | \$460,000               |
| 34. | Voluntary payment program by a city government to compensate current and former city police officers for unpaid overtime wages.                                                                                                                                                                       | Claims Administrator            | 175 Class Members    | \$300,000               |
| 35. | <b><i>In re Moyer Packing Co., P. &amp; S. Docket No. D-07-0053 (U.S. Dep't Agric.)</i></b> . Consent decision involving a beef processing company to compensate cattle producers for goods sold based on weights derived using an allegedly malfunctioning weight calculation system.                | Notice and Claims Administrator | 1,100 Claimants      | \$300,000               |
| 36. | <b><i>Wilder v. Triad Financial Corp., No. 3:03-cv-863 (E.D. Va.)</i></b> . Class action settlement by a financial services company to resolve claims associated with automobile loan applications under the Fair Credit Reporting Act.                                                               | Notice and Claims Administrator | 80,000 Class Members | \$200,000               |
| 37. | <b><i>Conerly v. Marshall Durbin Food Corp., No. 2:06-cv-205 (N.D. Ala.)</i></b> . Class action settlement by a poultry processing company to resolve claims under the Fair Labor Standards Act regarding employee compensation for time spent donning/doffing protective equipment.                  | Notice and Claims Administrator | 1,900 Class Members  | \$150,000               |
| 38. | <b><i>Ferguson v. Food Lion, LLC, No. 12-c-861 (Berkeley County W. Va. Cir. Ct.)</i></b> . Class action settlement by a retail company to resolve claims under the West Virginia Wage Payment and Collection Act regarding timing of paychecks issued to discharged employees.                        | Notice and Claims Administrator | 185 Class Members    | \$150,000               |
| 39. | Voluntary settlement by a food processing company to resolve claims regarding employee compensation for donning/doffing protective equipment.                                                                                                                                                         | Notice Administrator            | 670 Class Members    | \$125,000               |





### SELECT ECONOMIC LOSS SETTLEMENT PROGRAM EXPERIENCE

|     | PROGRAM DESCRIPTION                                                                                                                                                                                                                                                                      | ROLE                            | APPROX. PROGRAM SIZE | APPROX. SETTLEMENT FUND  |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|----------------------|--------------------------|
| 40. | <b>Cook v. Columbia Freightliner, LLC, No. 10-CP-02-1987 (Aiken County S.C. Jud. Dist.)</b> . Class action settlement to resolve claims regarding a trucking company and the collection of administrative fees in the sale of motor vehicles.                                            | Notice and Claims Administrator | 380 Class Members    | \$17,000                 |
| 41. | Voluntary payments by a financial institution to reimburse fees charged to the credit card accounts of small business owners.                                                                                                                                                            | Payment Administrator           | 650 Class Members    | \$16,000                 |
| 42. | <b>Clark v. Group Hospitalization and Medical Services, Inc., No. 3:10-CIV-00333-BEN-BLM (S.D. Cal.)</b> . Class action settlement by a health insurance provider to resolve claims under the Employee Retirement Income Security Act and California's Unfair Competition Law.           | Notice and Claims Administrator | 80 Class Members     | \$1,300 Disbursed        |
| 43. | <b>Quinn v. BJC Health System, No. 052-00821A (City of St. Louis Mo. Cir. Ct.)</b> . Class action settlement by a healthcare system to resolve claims associated with hospital fees charged to uninsured patients.                                                                       | Claims Administrator            | 26,000 Class Members | Company Did Not Disclose |
| 44. | <b>Hoseler v. Smithfield Packing Co., Inc., No. 7:07-cv-166-H (E.D. N.C.)</b> . Class action settlement by a poultry processing company to resolve claims under the Fair Labor Standards Act for employee compensation for time spent donning/doffing protective equipment.              | Notice Administrator            | 12,200 Class Members | Company Did Not Disclose |
| 45. | <b>Edwards v. Tyson Foods, Inc., No. C07-4009 (S.D. Iowa)</b> . Class action settlement by a poultry processing company to resolve claims under the Fair Labor Standards Act for employee compensation for time spent donning/doffing protective equipment.                              | Notice Administrator            | 10,000 Class Members | Company Did Not Disclose |
| 46. | <b>Lopez v. Tyson Foods, Inc., No. 8:06-0459 (D. Neb.)</b> . Class action settlement by a poultry processing company to resolve claims under the Fair Labor Standards Act and Nebraska law for employee compensation for time spent donning/doffing protective equipment.                | Intake – Opt Ins                | 8,500 Class Members  | Company Did Not Disclose |
| 47. | <b>Gomez v. Tyson Foods, Inc., No. 08-021 (D. Neb.)</b> . Class action settlement by a poultry processing company to resolve claims under the Fair Labor Standards Act and Nebraska law for employee compensation for time spent donning/doffing protective equipment.                   | Notice Administrator            | 5,300 Class Members  | Company Did Not Disclose |
| 48. | <b>Guyton v. Tyson Foods, Inc., No. 3:07-cv-00088-JAJ-TJS (S.D. Iowa)</b> . Class action settlement by a poultry processing company to resolve claims under the Fair Labor Standards Act and the Iowa law for employee compensation for time spent donning/doffing protective equipment. | Intake – Opt Ins                | 4,200 Class Members  | Company Did Not Disclose |



### SELECT ECONOMIC LOSS SETTLEMENT PROGRAM EXPERIENCE

|     | PROGRAM DESCRIPTION                                                                                                                                                                                                                                                                                         | ROLE                    | APPROX. PROGRAM SIZE | APPROX. SETTLEMENT FUND  |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|----------------------|--------------------------|
| 49. | <b>Sharp v. Tyson Foods, Inc., No. C07-4009MWB (N.D. Iowa).</b> Class action settlement by a poultry processing company to resolve claims under the Fair Labor Standards Act and Iowa law for employee compensation for time spent donning/doffing protective equipment.                                    | Intake – Opt Ins        | 3,900 Class Members  | Company Did Not Disclose |
| 50. | <b>Acosta v. Tyson Foods, Inc., No. 8:08-cv-86 (D. Neb.).</b> Class action settlement by a poultry producer to resolve claims under the Fair Labor Standards Act and Nebraska law for employee compensation for time spent donning/doffing protective equipment.                                            | Notice Administrator    | 3,700 Class Members  | Company Did Not Disclose |
| 51. | <b>Stout v. JELD-WEN, Inc., No. 1:08-cv-0652 (N.D. Ohio).</b> Class action settlement by a window manufacturer to resolve claims under Ohio law for the sale of allegedly defective windows.                                                                                                                | Notice Administrator    | 2,700 Class Members  | Company Did Not Disclose |
| 52. | <b>Parker v. The Smithfield Packing Co., Inc., No. 2:06-cv-468 (E.D. Va.).</b> Voluntary settlement by a pork producer to resolve claims by employees under the Fair Labor Standards Act for employee compensation for time spent donning/doffing protective equipment.                                     | Notice Administrator    | 2,700 Class Members  | Company Did Not Disclose |
| 53. | <b>Ene v. Maxim Healthcare Services, Inc., No. 4:09-cv-02453 (S.D. Tex.).</b> Class action settlement by a healthcare provider to resolve claims under the Fair Labor Standards Act concerning the classification of healthcare recruiters as exempt from overtime pay.                                     | Notice Administrator    | 1,600 Class Members  | Company Did Not Disclose |
| 54. | <b>Colbert v. Marshall Durbin Food Corp., Alabama Arbitration No. 30 160 00132 08 (N.D. Ala.).</b> Class action settlement by a poultry processing company to resolve claims by employees under the Fair Labor Standards Act for employee compensation for time spent donning/doffing protective equipment. | Notice Administrator    | 1,300 Class Members  | Company Did Not Disclose |
| 55. | <b>Betancourt v. Maxim Healthcare Services, Inc., No. 10-cv-04763 (N.D. Ill.).</b> Class action settlement by a healthcare provider to resolve claims under the Fair Labor Standards Act concerning the classification of healthcare recruiters as exempt from overtime pay.                                | Notice Administrator    | 1,200 Class Members  | Company Did Not Disclose |
| 56. | <b>In re Lehman Brothers Holdings Inc., No. 08-13555-JMP (Bankr. S.D.N.Y.).</b> Program to track, monitor and evaluate fees being charged by bankruptcy lawyers in the Lehman Brothers Chapter 11 bankruptcy proceeding.                                                                                    | Fee Committee Assistant | Not Applicable       | Not Applicable           |

# ATTACHMENT 3



# CONCUSSION SETTLEMENT

IN RE: NATIONAL FOOTBALL LEAGUE PLAYERS' CONCUSSION INJURY LITIGATION  
No. 2:12-md-02323 (E.D. PENN.)

## PLAYERS AND RELATIVES DATA SETS RECEIVED BY AND CREATED BY BROWNGREER TO COMPILE THE MASTER NOTICE MAILING LIST

| Data Set |                                                    |                                        | Players |                          |                |                |                   |                    | Relatives |                      |                |                | All Names |
|----------|----------------------------------------------------|----------------------------------------|---------|--------------------------|----------------|----------------|-------------------|--------------------|-----------|----------------------|----------------|----------------|-----------|
| Row      | Source and File Name                               | Date Received or Created by BrownGreer | Names   | Any Address Information? | Date of Birth? | Date of Death? | Team Information? | Years Played Data? | Names     | Address Information? | Date of Birth? | Date of Death? | Total     |
| 1.       | Kinsella Media                                     | 10/8/2013                              | 22,138  | No                       | Yes            | No             | No                | Yes                | N/A       | No                   | No             | No             | 22,138    |
|          | (FootballPlayerData_v2)                            |                                        |         |                          |                |                |                   |                    |           |                      |                |                |           |
| 2.       | Kinsella Media                                     | 10/10/2013                             | 34,469  | Yes                      | No             | No             | No                | No                 | 97        | No                   | No             | No             | 34,566    |
|          | (Combined Class List)                              |                                        |         |                          |                |                |                   |                    |           |                      |                |                |           |
| 3.       | Kinsella Media                                     | 10/8/2013                              | 17,070  | Yes                      | No             | No             | No                | No                 | 10,517    | Yes                  | No             | No             | 27,587    |
|          | (Copy of 2013MAR06 LIVING)                         |                                        |         |                          |                |                |                   |                    |           |                      |                |                |           |
| 4.       | Kinsella Media                                     | 10/8/2013                              | N/A     | No                       | No             | No             | No                | No                 | 6,324     | Yes                  | No             | No             | 6,324     |
|          | (Copy of Custom Staging_Merged Relatives List)     |                                        |         |                          |                |                |                   |                    |           |                      |                |                |           |
| 5.       | Kinsella Media                                     | 10/8/2013                              | 1,608   | Yes                      | No             | No             | No                | No                 | 625       | Yes                  | No             | No             | 2,233     |
|          | (Deceased Player Address List)                     |                                        |         |                          |                |                |                   |                    |           |                      |                |                |           |
| 6.       | Kinsella Media                                     | 10/8/2013                              | 3,613   | No                       | No             | No             | Yes               | Yes                | N/A       | No                   | No             | No             | 3,613     |
|          | (Europe NFL and AFL Split (NFL Europe Worksheet))  |                                        |         |                          |                |                |                   |                    |           |                      |                |                |           |
| 7.       | Kinsella Media                                     | 10/8/2013                              | 1,398   | No                       | No             | Yes            | Yes               | Yes                | N/A       | No                   | No             | No             | 1,398     |
|          | (Europe NFL and AFL Split (AFL Worksheet))         |                                        |         |                          |                |                |                   |                    |           |                      |                |                |           |
| 8.       | NFL (8-15 of Class Counsel)                        | 11/7/2013                              | 17,299  | Yes                      | Yes            | No             | No                | Yes                | N/A       | No                   | No             | No             | 17,299    |
|          | (Copy of Living Inactive Players – 2013 05 09 (3)) |                                        |         |                          |                |                |                   |                    |           |                      |                |                |           |
| 9.       | NFL (Class Counsel)                                | 11/7/2013                              | 16,212  | Yes                      | Yes            | No             | No                | Yes                | N/A       | No                   | No             | No             | 16,212    |
|          | (By Age State Zip – Min 1 CS)                      |                                        |         |                          |                |                |                   |                    |           |                      |                |                |           |
| 10.      | NFL (Class Counsel)                                | 11/7/2013                              | 1,617   | No                       | Yes            | Yes            | No                | Yes                | N/A       | No                   | No             | No             | 1,617     |
|          | (Deceased NFL Players List)                        |                                        |         |                          |                |                |                   |                    |           |                      |                |                |           |
| 11.      | NFL (Class Counsel)                                | 11/7/2013                              | 3,582   | No                       | No             | No             | Yes               | Yes                | N/A       | No                   | No             | No             | 3,582     |
|          | (All NFLE Players)                                 |                                        |         |                          |                |                |                   |                    |           |                      |                |                |           |



# CONCUSSION SETTLEMENT

IN RE: NATIONAL FOOTBALL LEAGUE PLAYERS' CONCUSSION INJURY LITIGATION  
No. 2:12-md-02323 (E.D. PENN.)

**PLAYERS AND RELATIVES DATA SETS RECEIVED BY AND CREATED BY BROWNGREER TO COMPILE THE MASTER NOTICE MAILING LIST**

| Data Set |                                                                |                                        | Players |                          |                |                |                   |                    | Relatives |                      |                |                | All Names |
|----------|----------------------------------------------------------------|----------------------------------------|---------|--------------------------|----------------|----------------|-------------------|--------------------|-----------|----------------------|----------------|----------------|-----------|
| Row      | Source and File Name                                           | Date Received or Created by BrownGreer | Names   | Any Address Information? | Date of Birth? | Date of Death? | Team Information? | Years Played Data? | Names     | Address Information? | Date of Birth? | Date of Death? | Total     |
| 12.      | NFL (Class Counsel)                                            | 11/7/2013                              | 1,912   | No                       | No             | No             | Yes               | Yes                | N/A       | No                   | No             | No             | 1,912     |
|          | (PS signing—never on in season Roster)                         |                                        |         |                          |                |                |                   |                    |           |                      |                |                |           |
| 13.      | NFL (Class Counsel)                                            | 11/7/2013                              | 2       | No                       | No             | No             | Yes               | Yes                | N/A       | No                   | No             | No             | 2         |
|          | (Dev Signing – never signed NFL Player Contract)               |                                        |         |                          |                |                |                   |                    |           |                      |                |                |           |
| 14.      | NFL (Class Counsel)                                            | 11/7/2013                              | 38      | No                       | No             | No             | Yes               | Yes                | N/A       | No                   | No             | No             | 38        |
|          | (PS S signing – never signed NFL Player Contract)              |                                        |         |                          |                |                |                   |                    |           |                      |                |                |           |
| 15.      | NFL (Class Counsel)                                            | 11/8/2013                              | 1,617   | No                       | Yes            | Yes            | No                | Yes                | 376       | Yes                  | Yes            | Yes            | 1,993     |
|          | (Deceased NFL Player List (with surviving family information)) |                                        |         |                          |                |                |                   |                    |           |                      |                |                |           |
| 16.      | ARPC                                                           | 11/8/2013                              | 6,425   | No                       | Yes            | Yes            | Yes               | Yes                | N/A       | No                   | No             | No             | 6,425     |
|          | (Necrology_NFL)                                                |                                        |         |                          |                |                |                   |                    |           |                      |                |                |           |
| 17.      | NFL Team (49ers)                                               | 11/21/2013                             | 105     | Yes                      | No             | No             | Yes               | No                 | 53        | Yes                  | No             | No             | 158       |
|          | (49ers Mailing Addresses)                                      |                                        |         |                          |                |                |                   |                    |           |                      |                |                |           |
| 18.      | NFL Teams (Bengals)                                            | 11/21/2013                             | 716     | Yes                      | No             | Yes            | Yes               | No                 | 30        | Yes                  | No             | No             | 746       |
|          | (Bengals Mailing Addresses)                                    |                                        |         |                          |                |                |                   |                    |           |                      |                |                |           |
| 19.      | NFL Teams (Bills)                                              | 11/21/2013                             | 441     | Yes                      | No             | No             | Yes               | No                 | 36        | Yes                  | No             | No             | 477       |
|          | (Bills Mailing Addresses)                                      |                                        |         |                          |                |                |                   |                    |           |                      |                |                |           |
| 20.      | NFL Teams (Browns)                                             | 11/21/2013                             | 892     | Yes                      | No             | Yes            | Yes               | No                 | N/A       | No                   | No             | No             | 892       |
|          | (Browns Mailing Addresses)                                     |                                        |         |                          |                |                |                   |                    |           |                      |                |                |           |
| 21.      | NFL Teams (Bucs)                                               | 11/21/2013                             | 1,140   | Yes                      | Yes            | No             | Yes               | No                 | 639       | Yes                  | Yes            | No             | 1,779     |
|          | (Bucs Mailing Addresses)                                       |                                        |         |                          |                |                |                   |                    |           |                      |                |                |           |
| 22.      | NFL Teams (Eagles)                                             | 11/21/2013                             | 216     | Yes                      | No             | No             | Yes               | No                 | N/A       | No                   | No             | No             | 216       |
|          | (Eagles Mailing Addresses)                                     |                                        |         |                          |                |                |                   |                    |           |                      |                |                |           |



# CONCUSSION SETTLEMENT

IN RE: NATIONAL FOOTBALL LEAGUE PLAYERS' CONCUSSION INJURY LITIGATION  
No. 2:12-md-02323 (E.D. PENN.)

## PLAYERS AND RELATIVES DATA SETS RECEIVED BY AND CREATED BY BROWNGREER TO COMPILE THE MASTER NOTICE MAILING LIST

| Data Set |                             |                                        | Players    |                          |                |                       |                        |                    | Relatives                |                       |                              |                          | All Names                 |
|----------|-----------------------------|----------------------------------------|------------|--------------------------|----------------|-----------------------|------------------------|--------------------|--------------------------|-----------------------|------------------------------|--------------------------|---------------------------|
| Row      | Source and File Name        | Date Received or Created by BrownGreer | Names      | Any Address Information? | Date of Birth? | Date of Death?        | Team Information?      | Years Played Data? | Names                    | Address Information?  | Date of Birth?               | Date of Death?           | Total                     |
| 23.      | NFL Teams (Jets)            | 11/21/2013                             | 403        | Yes                      | No             | No                    | Yes                    | No                 | N/A                      | No                    | No                           | No                       | 403                       |
|          | (Jets Mailing Addresses)    |                                        |            |                          |                |                       |                        |                    |                          |                       |                              |                          |                           |
| 24.      | NFL Teams (Lions)           | 11/21/2013                             | 256        | Yes                      | No             | No                    | Yes                    | No                 | N/A                      | No                    | No                           | No                       | 256                       |
|          | (Lions Mailing Addresses)   |                                        |            |                          |                |                       |                        |                    |                          |                       |                              |                          |                           |
| 25.      | NFL Teams (Packers)         | 11/21/2013                             | 2,286      | Yes                      | No             | No                    | Yes                    | No                 | 478                      | Yes                   | No                           | No                       | 2,764                     |
|          | (Packers Mailing Addresses) |                                        |            |                          |                |                       |                        |                    |                          |                       |                              |                          |                           |
| 26.      | NFL Teams (Ravens)          | 11/21/2013                             | 326        | Yes                      | No             | No                    | Yes                    | No                 | N/A                      | No                    | No                           | No                       | 326                       |
|          | (Ravens Mailing Addresses)  |                                        |            |                          |                |                       |                        |                    |                          |                       |                              |                          |                           |
| 27.      | NFL Teams (Titans)          | 11/25/2013                             | 546        | Yes                      | No             | No                    | Yes                    | No                 | 165                      | Yes                   | No                           | No                       | 1,024                     |
|          | (Titans Mailing Addresses)  |                                        |            |                          |                |                       |                        |                    |                          |                       |                              |                          |                           |
| 28.      | NFL.com                     | 11/21/2013                             | 27,267     | No                       | Yes            | No                    | No                     | No                 | N/A                      | No                    | No                           | No                       | 27,267                    |
|          | (created from website)      |                                        |            |                          |                |                       |                        |                    |                          |                       |                              |                          |                           |
| 29.      | DatabaseSports.com          | 11/19/2013                             | 22,138     | No                       | Yes            | No                    | No                     | No                 | N/A                      | No                    | No                           | No                       | 22,138                    |
|          | (created from website)      |                                        |            |                          |                |                       |                        |                    |                          |                       |                              |                          |                           |
| 30.      | SUBTOTALS                   |                                        | 185,732    |                          |                |                       |                        |                    | 19,340                   |                       |                              |                          | 205,072                   |
| 31.      | Pro-Football-Reference.com  | 12/8/2013                              | 23,204     | No                       | No             | No                    | No                     | Yes                | N/A                      | No                    | No                           | No                       | 23,204                    |
|          | (created from website)      |                                        |            |                          |                |                       |                        |                    |                          |                       |                              |                          |                           |
| 32.      | NFL Teams (Broncos)         | 12/18/2013                             | 374        | Yes                      | No             | No                    | Yes                    | No                 | N/A                      | No                    | No                           | No                       | 374                       |
|          | (Broncos Mailing Addresses) |                                        |            |                          |                |                       |                        |                    |                          |                       |                              |                          |                           |
| 33.      | NFL Teams (Giants)          | 12/18/2013                             | 979        | Yes                      | No             | No                    | Yes                    | No                 | 165                      | Yes                   | No                           | No                       | 1,144                     |
|          | (Giants Mailing Addresses)  |                                        |            |                          |                |                       |                        |                    |                          |                       |                              |                          |                           |
| 34.      | NFL Teams (Chiefs)          | 12/18/2013                             | 206        | Yes                      | No             | No                    | Yes                    | No                 | 105                      | Yes                   | No                           | No                       | 311                       |
|          | (Chiefs Mailing Addresses)  |                                        |            |                          |                |                       |                        |                    |                          |                       |                              |                          |                           |
| 35.      | TOTALS                      |                                        | 210,495    |                          |                |                       |                        |                    | 19,610                   |                       |                              |                          | 230,105                   |
| Row      | Data Set                    | Date Received or Created by BrownGreer | Plaintiffs | Movants                  | Special Master | Defendants/ Corporate | Total Names of Counsel |                    | Plaintiffs Added to List | Movants Added to List | Special Master Added to List | Defendants Added to List | Total Names Added to List |
| 36.      | Counsel of Record           | 7/28/2014                              | 172        | 7                        | 1              | 69                    | 249                    |                    | 162                      | 7                     | 0                            | 0                        | 169                       |

# ATTACHMENT 4



**MAILING LIST STATISTICS**  
(AS OF 6/24/14)

| Row | Category                                                                                                        | Players       | Relatives    | Total         |
|-----|-----------------------------------------------------------------------------------------------------------------|---------------|--------------|---------------|
| 1.  | Living Players Not Appearing on NFL.com list of "Current" Players with Address Obtained Through Data Research   | 20,491        | N/A          | <b>20,491</b> |
| 2.  | Living Players Not Appearing on NFL.com list of "Current" Players with Address Provided in Original Data Source | 2,051         | N/A          | <b>2,051</b>  |
| 3.  | Relatives of Deceased Players with Address Obtained Through Data Research                                       | N/A           | 8,857        | <b>8,857</b>  |
| 4.  | Relatives of Deceased Players with Address Provided in Original Data Source                                     | N/A           | 67           | <b>67</b>     |
| 5.  | Living Players Appearing on NFL.com list of "Current" Players with Address Obtained Through Data Research       | 2,079         | N/A          | <b>2,079</b>  |
| 6.  | Living Players Appearing on NFL.com list of "Current" Players with Address Provided in Original Data Source     | 2             | N/A          | <b>2</b>      |
| 7.  | Deceased Players without Relatives, but with Last Known Player Address Obtained Through Data Research           | 407           | N/A          | <b>407</b>    |
| 8.  | Deceased Players without Relatives, but with Last Known Player Address Provided in Original Data Source         | 30            | N/A          | <b>30</b>     |
| 9.  | <b>TOTAL: Mailable Addresses</b>                                                                                | <b>25,060</b> | <b>8,924</b> | <b>33,984</b> |



# ATTACHMENT 5

# NFL

## CONCUSSION SETTLEMENT

IN RE: NATIONAL FOOTBALL LEAGUE PLAYERS' CONCUSSION INJURY LITIGATION  
No. 2:12-md-02323 (E.D. PENN.)

[HOME](#)[NOTICE MATERIALS](#)[COURT DOCUMENTS](#)[FAQs](#)[SIGN UP FOR FUTURE INFORMATION](#)

### Welcome to the NFL Concussion Settlement Program Website

A Settlement of a class action lawsuit was reached with the NFL and NFL Properties and retired NFL players, their representatives and family members. The retired NFL players sued, accusing the NFL of not warning players and hiding the damages of brain injury. On July 7, 2014 the Court granted preliminary approval of this Settlement.

Retired players, legal representatives of incapacitated or deceased players, and families of deceased players may be eligible to receive benefits from this Settlement.

The proposed settlement provides for three benefits:

1. Baseline medical exams for retired NFL players;
2. Monetary awards for diagnoses of ALS (Lou Gehrig's disease), Alzheimer's Disease, Parkinson's Disease, Dementia and certain cases of chronic traumatic encephalopathy or CTE (a neuropathological finding) diagnosed after death; and
3. Education programs and initiatives related to football safety.

All valid claims for injury will be paid in full for 65 years.

Retired players, their legal representatives and family members do not have to prove that the players' injuries were caused by playing NFL football to get money from the Settlement.

**You will be able to register for benefits after the Court grants final approval of the Settlement. If you would like information in the future when the registration period opens, click "Sign Up for Future Information" below and provide your contact information.**

[SIGN UP FOR  
FUTURE INFORMATION](#)

**NOTICE MAILING LIST:** Packets containing the Court-approved Notice regarding the Settlement have been mailed to known Class Members for whom home addresses could be reasonably obtained, on July 24, 2014. If you have any questions about whether you or any of your clients were included on that mailing list and at what address, you may send an email to [ClaimsAdministrator@NFLConcussionSettlement.com](mailto:ClaimsAdministrator@NFLConcussionSettlement.com) and provide your name and current address (or the names and addresses of your clients). The Claims Administrator will check the list and let you know if your or your clients were on the list and at what address. You can also use that email to provide any address updates.

# NFL

# CONCUSSION SETTLEMENT

IN RE: NATIONAL FOOTBALL LEAGUE PLAYERS' CONCUSSION INJURY LITIGATION  
No. 2:12-md-02323 (E.D. PENN.)

[HOME](#)[NOTICE MATERIALS](#)[COURT DOCUMENTS](#)[FAQs](#)[SIGN UP FOR FUTURE INFORMATION](#)

## Notice Materials

Click the links below to view, print or download these notice materials:

1. [Long-form Notice](#)
2. [Summary Notice](#)
3. [Injury Definitions](#)



# NFL

# CONCUSSION SETTLEMENT

IN RE: NATIONAL FOOTBALL LEAGUE PLAYERS' CONCUSSION INJURY LITIGATION  
No. 2:12-md-02323 (E.D. PENN.)

[HOME](#) | [NOTICE MATERIALS](#) | [COURT DOCUMENTS](#) | [FAQs](#) | [SIGN UP FOR FUTURE INFORMATION](#)

## Court Documents

Click the links below to view, print or download these court documents:

1. [Class Action Settlement Agreement with Exhibits](#)
2. [Injury Definitions](#)
3. [Preliminary Approval Order](#)
4. [Preliminary Approval Memorandum Opinion](#)
5. [Memorandum of Law in Support of Preliminary Approval](#)
6. [Motion for Preliminary Approval](#)
7. [Declaration of Layn R. Phillips](#)
8. [Declaration of Katherine Kinsella](#)





**NFL****CONCUSSION SETTLEMENT**IN RE: NATIONAL FOOTBALL LEAGUE PLAYERS' CONCUSSION INJURY LITIGATION  
No. 2:12-md-02323 (E.D. PENN.)[HOME](#) | [NOTICE MATERIALS](#) | [COURT DOCUMENTS](#) | [FAQs](#) | [SIGN UP FOR FUTURE INFORMATION](#)**Frequently Asked Questions**[BASIC INFORMATION](#)[WHO IS PART OF THE SETTLEMENT?](#)[THE BASELINE ASSESSMENT PROGRAM](#)[MONETARY AWARDS](#)[EDUCATION FUND](#)[REMAINING IN THE SETTLEMENT](#)[HOW TO GET BENEFITS](#)[EXCLUDING YOURSELF \(OPTING OUT\) FROM THE SETTLEMENT](#)[THE LAWYERS REPRESENTING YOU](#)[OBJECTING TO THE SETTLEMENT](#)[THE COURT'S FAIRNESS HEARING](#)[GETTING MORE INFORMATION](#)[QUESTIONS IN ADDITION TO THOSE IN THE LONG FORM NOTICE](#)**BASIC INFORMATION****1. Why is this Notice being provided?**

The Court in charge of this case authorized this Notice because you have a right to know about the proposed Settlement of this lawsuit and about all of your options before the Court decides whether to give final approval to the Settlement. This Notice summarizes the Settlement and explains your legal rights and options.

This case is being heard in the U.S. District Court for the Eastern District of Pennsylvania. The case is known as *In re: National Football League Players' Concussion Injury Litigation*, No. 2:12-md-02323. The people who sued are called the "Plaintiffs." The National Football League and NFL Properties, LLC are called the "NFL Defendants."

The Settlement may affect your rights if you are: (a) a retired player of the NFL, American Football League ("AFL"), World League of American Football, NFL Europe League or NFL Europa League, (b) an authorized representative of a deceased, legally incapacitated or incompetent retired player of those leagues, or (c) an individual with a close legal relationship with a retired player of those leagues, such as a spouse, parent or child.

[Back To Top](#)**2. What is the litigation about?**

The Plaintiffs claim that retired players experienced head trauma during their NFL football playing careers that resulted in brain injuries, which have caused or may cause them long-term neurological problems. The Plaintiffs accuse the NFL Parties of being aware of the evidence and the risks associated with repetitive traumatic brain injuries but failing to warn and protect the players against the long-term risks, and ignoring and concealing this information from the players. The NFL Parties deny the claims in the litigation.

[Back To Top](#)**3. What is a class action?**

In a class action, one or more people, the named plaintiffs (who are also called proposed "class representatives") sue on behalf of themselves and other people with similar claims. All of these people together are the proposed "class" or "class members." When a class action is settled, one court resolves the issues for all class members (in the settlement context, "settlement class members"), except for those who exclude themselves (opt out) from the settlement. In this case, the proposed class representatives are Kevin Turner and Shawn Wooden. Excluding yourself (opting

**NFL****CONCUSSION SETTLEMENT**IN RE: NATIONAL FOOTBALL LEAGUE PLAYERS' CONCUSSION INJURY LITIGATION  
No. 2:12-md-02323 (E.D. PENN.)[HOME](#) | [NOTICE MATERIALS](#) | [COURT DOCUMENTS](#) | [FAQs](#) | [SIGN UP FOR FUTURE INFORMATION](#)**Sign Up for Future Information on Registration Period**

**Instructions:** If you would like to receive more information on how to register for the Settlement, once it is approved by the Court, fill out the form below. At a later date, you will receive complete information on how to register for benefits. The sections marked with an \* must be completed.

If you are a lawyer and would like to sign up multiple clients in a group, email the Claims Administrator at [ClaimsAdministrator@NFLConcussionSettlement.com](mailto:ClaimsAdministrator@NFLConcussionSettlement.com) for assistance.

Name: \*  First  Middle  Last  Suffix Country: \* ☒ USA ☐ Foreign  United States Address 1: \* Address 2: City: \* State: \* Zip/Postal Code: \* Current Phone Number: \*  -  - Email Address: \* 

Check the appropriate box below to indicate if you are a: \*

☐ Retired NFL Player☐ Authorized representative of a Retired NFL Player or deceased Retired NFL Player

Name the Retired NFL Player you represent:

 First  Middle  Last  Suffix ☐ Counsel to a Retired NFL Player or to a representative of a Retired NFL Player or deceased Retired NFL Player

Name the Retired NFL Player you represent:

 First  Middle  Last  Suffix ☐ Spouse, parent, or dependent child of a Retired NFL Player or deceased Retired NFL Player

Name the Retired NFL Player with whom you have or had relationship:

 First  Middle  Last  Suffix ☐ Other**SUBMIT**

JA4211

# ATTACHMENT 6

## **WEBSITE FAQs**

### **BASIC INFORMATION**

1. Why is this Notice being provided?
2. What is the litigation about?
3. What is a class action?
4. Why is there a Settlement?
5. What are the benefits of the Settlement?

### **WHO IS PART OF THE SETTLEMENT?**

6. Who is included in the Settlement Class?
7. What players are not included in the Settlement Class?
8. What if I am not sure whether I am included in the Settlement Class?
9. What are the different levels of neurocognitive impairment?
10. Must a retired player be vested under the NFL Retirement Plan to receive Settlement benefits?

### **THE BASELINE ASSESSMENT PROGRAM**

11. What is the Baseline Assessment Program (“BAP”)?
12. Why should a retired player get a BAP baseline examination?
13. How does a retired player schedule a baseline assessment examination and where will it be done?

### **MONETARY AWARDS**

14. What diagnoses qualify for monetary awards?
15. Do I need to prove that playing professional football caused the retired player’s Qualifying Diagnosis?
16. How much money will I receive?
17. How does the age of the retired player at the time of first diagnosis affect a monetary award?
18. How does the number of seasons a retired player played affect a monetary award?
19. How do prior strokes or brain injuries of a retired player affect a monetary award?
20. How is a retired player’s monetary award affected if he does not participate in the BAP program?
21. Can I receive a monetary award even though the retired player is dead?
22. Will this Settlement affect a retired player’s participation in NFL or NFLPA related benefits programs?
23. Will this Settlement prevent retired players from bringing workers’ compensation claims?

### **EDUCATION FUND**

24. What types of education programs are supported by the Settlement?

### **REMAINING IN THE SETTLEMENT**

25. What am I giving up to stay in the Settlement Class?

### **HOW TO GET BENEFITS**

25. How do I get Settlement benefits?
27. Is there a time limit for Retired NFL Football Players and Representative Claimants to file claims for monetary awards?
28. Can I re-apply for compensation if my claim is denied?
29. Can I appeal the determination of my monetary award claim?

### **EXCLUDING YOURSELF FROM THE SETTLEMENT**

30. How do I get out of the Settlement?
31. If I do not exclude myself, can I sue the NFL Parties for the same thing later?





together are the proposed “class” or “class members.” When a class action is settled, one court resolves the issues for all class members (in the settlement context, “settlement class members”), except for those who exclude themselves (opt out) from the settlement. In this case, the proposed class representatives are Kevin Turner and Shawn Wooden. Excluding yourself (opting out) means that you will not receive any benefits from the Settlement. The process for excluding yourself (opting out) is described [here](#) ([link to question 30](#)).

#### 4. Why is there a Settlement?

After extensive settlement negotiations mediated by retired United States District Court Judge Layn Phillips, and further settlement negotiations under the supervision of the Court-appointed Special Master, Perry Golkin, the Plaintiffs and the NFL Parties agreed to the Settlement.

A settlement is an agreement between a plaintiff and a defendant to resolve a lawsuit. Settlements conclude litigation without the court or a jury ruling in favor of the plaintiff or the defendant. A settlement allows the parties to avoid the cost and risk of a trial, as well as the delays of litigation.

If the Court approves this Settlement, the litigation between the [Settlement Class Members](#) ([link to question 6](#)) and the NFL Parties is over. Only Settlement Class Members are eligible for the benefits summarized on this website. The NFL Parties will no longer be legally responsible to defend against the claims by Settlement Class Members made in this litigation.

The Court has not and will not decide in favor of the retired players or the NFL Parties. By reviewing this Settlement, the Court is not making and will not make any findings that any law was broken or that the NFL Parties did anything wrong.

The proposed Class Representatives and their lawyers ([“Co-Lead Class Counsel,” “Class Counsel,” and “Subclass Counsel”](#)) ([link to question 33](#)) believe that the proposed Settlement is best for everyone who is affected. The factors that Co-Lead Class Counsel, Class Counsel and Subclass Counsel considered included the uncertainty and delay associated with continued litigation, a trial and appeals and the uncertainty of particular legal issues that are yet to be determined by the Court. Co-Lead Class Counsel, Class Counsel and Subclass Counsel balanced these and other substantial risks in determining that the Settlement is fair, reasonable and adequate in light of all circumstances and in the best interests of the Settlement Class Members.

The Settlement Agreement is available [here](#) ([link to Court Documents page](#)). The Settlement Agreement is also on file with the [Clerk of the Court for the U.S. District Court for the Eastern District of Pennsylvania](#) ([link to question 35](#)). You can also get this information by calling 1-855-887-3485.

#### 5. What are the benefits of the Settlement?

Under the Settlement, the NFL Parties will pay to fund:

- Baseline neuropsychological and neurological examinations for eligible retired players, and additional medical testing, counseling and/or treatment if they are diagnosed with moderate cognitive impairment during the baseline examinations (up to \$75 million, [“Baseline Assessment Program”](#)); ([link to question 11](#))
- [Monetary awards](#) ([link to question 14](#)) for diagnoses of Death with CTE prior to **July 7, 2014**, ALS, Parkinson’s Disease, Alzheimer’s Disease, Level 2 Neurocognitive Impairment (*i.e.*, moderate Dementia) and Level 1.5 Neurocognitive Impairment (*i.e.*, early Dementia) (*see* Questions 14-21 and [Injury Definitions](#) ([link to Injury Definitions](#))). **All valid claims under the Settlement, without**

limitation, will be paid in full throughout the 65-year life of the Settlement (the “Monetary Award Fund”); and

- [Education programs](#) ([link to question 24](#)) promoting safety and injury prevention with respect to football players, including safety-related initiatives in youth football, the education of retired players regarding the NFL’s medical and disability programs and other educational programs and initiatives (\$10 million).

In addition, the NFL Parties will pay the cost of notifying the Settlement Class. Administrative costs and expenses will be paid out of the Monetary Award Fund. The Baseline Assessment Program costs and expenses will be paid out of the Baseline Assessment Program Fund.

The details of the Settlement benefits are in the Settlement Agreement, which is available [here](#) ([link to Court Documents page](#)). The Settlement Agreement is also on file with the [Clerk of the Court for the U.S. District Court for the Eastern District of Pennsylvania](#). ([link to question 35](#)) You can also get this information by calling **1-855-887-3485**.

**Note:** The Baseline Assessment Program and Monetary Award Fund will be administered independently of the NFL Parties and any benefit programs that have been created between the NFL and the NFL Players Association. The NFL Parties are not involved in determining the validity of claims under the Settlement.

## WHO IS PART OF THE SETTLEMENT?

### 6. Who is included in the Settlement Class?

This Settlement Class includes three types of people:

Retired NFL Football Players: All living NFL Football players who, prior to **July 7, 2014**, (1) have retired, formally or informally, from playing professional football with the NFL or any Member Club, including AFL, World League of American Football, NFL Europe League and NFL Europa League players, or (2) were formerly on any roster, including preseason, regular season, or postseason, of any such Member Club or league and no longer are under contract to a Member Club and are not seeking active employment as a player with any Member Club, whether signed to a roster or signed to any practice squad, developmental squad, or taxi squad of a Member Club.

Representative Claimants: Authorized representatives, ordered by a court or other official of competent jurisdiction under applicable state law, of deceased, legally incapacitated or incompetent Retired NFL Football Players.

Derivative Claimants: Spouses, parents, dependent children, or any other persons who properly under applicable state law assert the right to sue independently or derivatively by reason of their relationship with a living or deceased Retired NFL Football Player. (For example, a spouse asserting the right to sue due to the injury of a husband who is a Retired NFL Football Player.)

The Settlement recognizes two separate groups (“Subclasses”) of Settlement Class Members based on the Retired NFL Football Player’s injury status prior to **July 7, 2014**:

- Subclass 1 includes: Retired NFL Football Players who were not diagnosed with ALS, Parkinson’s Disease, Alzheimer’s Disease, Level 2 Neurocognitive Impairment (*i.e.*, moderate Dementia),

Level 1.5 Neurocognitive Impairment (*i.e.*, early Dementia) or Death with CTE prior to **July 7, 2014**, and their Representative Claimants and Derivative Claimants.

- Subclass 2 includes:
  - Retired NFL Football Players who were diagnosed with ALS, Parkinson's Disease, Alzheimer's Disease, Level 2 Neurocognitive Impairment (*i.e.*, moderate Dementia), or Level 1.5 Neurocognitive Impairment (*i.e.*, early Dementia) prior to July 7, 2014, and their Representative Claimants and Derivative Claimants; and
  - Representative Claimants of deceased Retired NFL Football Players who were diagnosed with ALS, Parkinson's Disease, Alzheimer's Disease, Level 2 Neurocognitive Impairment (*i.e.*, moderate Dementia), or Level 1.5 Neurocognitive Impairment (*i.e.*, early Dementia) prior to death or who died prior to **July 7, 2014** and received a diagnosis of Death with CTE.

## 7. What players are not included in the Settlement Class?

The Settlement Class does not include current NFL players. The Settlement Class also does not include people who tried out for but did not make it onto preseason, regular season or postseason rosters or practice, developmental or taxi squads of the NFL or any Member Clubs.

## 8. What if I am not sure whether I am included in the Settlement Class?

If you are not sure whether you are included in the Settlement Class, you may call **1-855-887-3485** with questions. You may also write with questions to NFL Concussion Settlement, **P.O. Box 25369, Richmond, VA 23260**. You may also consult with your own attorney.

## 9. What are the different levels of neurocognitive impairment?

In addition to ALS, Parkinson's Disease and Alzheimer's Disease, various levels of neurocognitive impairment are covered by this Settlement. More details can be found in the Injury Definitions, which are available [here \(link to Injury Definitions\)](#) or by calling **1-855-887-3485**.

The level of neurocognitive impairment will be established in part with evidence of decline in performance in at least two areas subject to clinical evaluative testing, provided one of the areas is executive function, learning and memory, or complex attention, and related functional impairment as follows:

| LEVEL OF NEUROCOGNITIVE IMPAIRMENT | TYPE OF IMPAIRMENT            | DEGREE OF DECLINE                    |
|------------------------------------|-------------------------------|--------------------------------------|
| Level 1                            | Moderate cognitive impairment | Moderate cognitive decline           |
| Level 1.5                          | Early Dementia                | Moderate to severe cognitive decline |
| Level 2                            | Moderate Dementia             | Severe cognitive decline             |

If neurocognitive impairment is temporary and only occurs with delirium, or as a result of substance abuse or medicinal side effects, it is not covered by the Settlement.

## 10. Must a retired player be vested under the NFL Retirement Plan to receive Settlement benefits?

No. A retired player can be a Settlement Class Member regardless of whether he is vested due to credited seasons or total and permanent disability under the Bert Bell/Pete Rozelle NFL Player Retirement Plan.

## THE BASELINE ASSESSMENT PROGRAM

### 11. What is the Baseline Assessment Program (“BAP”)?

All living retired players who have earned at least one-half of an [Eligible Season \(link to question 18\)](#), who do not [exclude themselves \(link to question 30\)](#) (opt out) from the Settlement, and who timely [register to participate \(link to sign-up page\)](#) in the Settlement may participate in the Baseline Assessment Program (“BAP”). Registration for benefits will not be available until after Final Settlement Approval. **A retired player may provide his name and contact information now [here \(link to sign-up page\)](#) or by calling 1-855-887-3485. This ensures that the retired player will receive additional notice about the registration process and deadlines when it becomes available.**

The BAP will provide baseline neuropsychological and neurological assessment examinations to determine whether retired players are currently suffering from cognitive impairment. Retired players will have from two to ten years, depending on their age as of the date the Settlement is finally approved and any appeals are fully resolved (“Final Settlement Approval”), to have a baseline examination conducted through a nationwide network of qualified and independent medical providers.

- Retired players 43 or older as of the date of Final Settlement Approval will need to have a baseline examination within two years of the start of the BAP.
- Retired players under the age of 43 as of the date of Final Settlement Approval will need to have a baseline examination within 10 years of the start of the BAP, or before they turn 45, whichever comes sooner.

Retired players who are diagnosed with Level 1 Neurocognitive Impairment (*i.e.*, moderate cognitive impairment) are eligible to receive further medical testing and/or treatment (including counseling and pharmaceuticals) for that condition during the ten-year term of the BAP or within five years from diagnosis, whichever is later.

Retired players who participate in the BAP will be encouraged to provide their confidential medical records for use in research into cognitive impairment and safety and injury prevention with respect to football players.

Although all retired players are encouraged to take advantage of the BAP and receive a baseline examination, they do not need to participate in the BAP to receive a monetary award. Any award to a retired player may be reduced by 10% if the retired player does not participate in the BAP, as explained in more detail [here \(link to question 20\)](#).

### 12. Why should a retired player get a BAP baseline examination?

Getting a BAP baseline examination will be beneficial. It will determine whether the retired player has any cognitive impairment. If he is diagnosed with Level 1 Neurocognitive Impairment (*i.e.*, moderate cognitive impairment), he will be eligible to receive further medical testing and/or treatment for that condition. In addition, regardless of any cognitive impairment today, the results of the BAP baseline examination can be

used as a comparison to measure any subsequent deterioration of cognitive condition over the course of his life. Participants also will be examined by at least two experts during the BAP baseline examinations, a neuropsychologist and a neurologist, and the retired player and/or his family members will have the opportunity to ask questions relating to any cognitive impairment during those examinations.

Participation in the BAP does not prevent the retired player from filing a claim for a monetary award. For the next 65 years, retired players will be eligible for compensation paid from the Monetary Award Fund if the player develops a [Qualifying Diagnosis \(link to question 14\)](#). Participation in the BAP also will help ensure that, to the extent the retired player receives a Qualifying Diagnosis in the future, he will receive the [maximum monetary award \(link to question 16\)](#) to which he is entitled.

### **13. How does a retired player schedule a baseline assessment examination and where will it be done?**

Retired players need to register for Settlement benefits before they can get a baseline assessment examination. Registration for benefits will not be available until after Final Settlement Approval. **A retired player may provide his name and contact information now [here \(link to sign-up page\)](#) or by calling 1-855-887-3485. This ensures that the retired player will receive additional notice about the registration process and deadlines when it becomes available.**

The BAP Administrator will send notice to those retired players determined during registration to be eligible for the BAP, explaining how to arrange for an initial baseline assessment examination. The BAP will use a nationwide network of qualified and independent medical providers who will provide both the initial baseline assessment as well as any further testing and/or treatment. The BAP Administrator, which will be appointed by the Court, will establish the network of medical providers.

## **MONETARY AWARDS**

### **14. What diagnoses qualify for monetary awards?**

Monetary awards are available for the diagnosis of ALS, Parkinson's Disease, Alzheimer's Disease, Level 2 Neurocognitive Impairment (*i.e.*, moderate Dementia), Level 1.5 Neurocognitive Impairment (*i.e.*, early Dementia) or Death with CTE (the "Qualifying Diagnoses"). A Qualifying Diagnosis may occur at any time until the end of the 65-year term of the Monetary Award Fund.

If a retired player receives a monetary award based on a Qualifying Diagnosis, and later is diagnosed with a different Qualifying Diagnosis that entitles him to a larger monetary award than his previous award, he will be eligible for an increase in compensation. This would also apply to Derivative Claimants.

Qualifying Diagnoses must be made by approved qualified specialists. Any time prior to Final Settlement Approval, only board-certified neurologists, board-certified neurosurgeons or board-certified neuro-specialist physicians or similarly qualified specialists can make Qualifying Diagnoses. Following Final Settlement Approval, only qualified specialists approved by the Claims Administrator will be able to make Qualifying Diagnoses with the exception of Qualifying Diagnoses made through the BAP.

### **15. Do I need to prove that playing football caused the Qualifying Diagnosis?**

No. No proof is necessary that a retired player's Qualifying Diagnosis was caused by playing football or that he experienced head injuries in the NFL, AFL, World League of American Football, NFL Europe League or NFL Europa League in order to receive a monetary award. The fact that a retired player receives a Qualifying Diagnosis is sufficient to be eligible for a monetary award.



You also do not need to exclude the possibility that the Qualifying Diagnosis was caused or contributed to by amateur football or other professional football league injuries or by various risk factors linked to the Qualifying Diagnosis.

#### 16. How much money will I receive?

The amount of money you will receive depends on the retired player's:

- Specific Qualifying Diagnosis,
- [Age at the time of diagnosis](#) ([link to question 17](#)),
- [Number of seasons](#) ([link to question 18](#)) played or practiced in the NFL or the AFL,
- [Diagnosis of a prior stroke or traumatic brain injury](#), ([link to question 19](#)) and
- Participation in a [baseline assessment exam](#) ([link to question 20](#)).

The amount of money you will receive also depends on:

- Any legally enforceable liens on the award,
- Any retainer agreement with an attorney, and
- [Any further assessments ordered by the Court](#) ([link to question 34](#)).

Certain costs and expenses related to resolving any liens for Settlement Class Members will be paid out of such Settlement Class Members' monetary awards or derivative claimant awards.

The table below lists the maximum amount of money available for each Qualifying Diagnosis before any adjustments are made.

| QUALIFYING DIAGNOSIS                                           | MAXIMUM AWARD AVAILABLE |
|----------------------------------------------------------------|-------------------------|
| Amyotrophic lateral sclerosis (ALS)                            | \$5 million             |
| Death with CTE (diagnosed after death)                         | \$4 million             |
| Parkinson's Disease                                            | \$3.5 million           |
| Alzheimer's Disease                                            | \$3.5 million           |
| Level 2 Neurocognitive Impairment<br>(i.e., moderate Dementia) | \$3 million             |
| Level 1.5 Neurocognitive Impairment<br>(i.e., early Dementia)  | \$1.5 million           |

Monetary awards may be increased up to 2.5% per year during the 65-year Monetary Award Fund term for inflation.

To receive the maximum amount outlined in the table, a retired player must have played for at least five [Eligible Seasons](#) ([link to question 18](#)) and have been diagnosed when younger than 45 years old.

Derivative Claimants are eligible to be compensated from the monetary award of the retired player with whom they have a close relationship in an amount of 1% of that award. If there are multiple Derivative Claimants for the same retired player, the 1% award will be divided among the Derivative Claimants according to the law where the retired player (or his Representative Claimant, if any) resides.

#### 17. How does the age of the retired player at the time of first diagnosis affect a monetary award?

Awards are reduced for retired players who were 45 or older when diagnosed. The younger a retired player is at the time of diagnosis, the greater the award he will receive. Setting aside the other downward adjustments to monetary awards, the table below provides:

- The average award within each age range for people diagnosed between the ages of 45-79; and
- The amount of the award for those under age 45 and over 79.

The actual amount will be determined based on each retired player's actual age at the time of diagnosis and on other potential adjustments.

| AGE AT DIAGNOSIS | ALS         | DEATH w/CTE | PARKINSON'S | ALZHEIMER'S | LEVEL 2     | LEVEL 1.5   |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Under 45         | \$5,000,000 | \$4,000,000 | \$3,500,000 | \$3,500,000 | \$3,000,000 | \$1,500,000 |
| 45 - 49          | \$4,500,000 | \$3,200,000 | \$2,470,000 | \$2,300,000 | \$1,900,000 | \$950,000   |
| 50 - 54          | \$4,000,000 | \$2,300,000 | \$1,900,000 | \$1,600,000 | \$1,200,000 | \$600,000   |
| 55 - 59          | \$3,500,000 | \$1,400,000 | \$1,300,000 | \$1,150,000 | \$950,000   | \$475,000   |
| 60 - 64          | \$3,000,000 | \$1,200,000 | \$1,000,000 | \$950,000   | \$580,000   | \$290,000   |
| 65 - 69          | \$2,500,000 | \$980,000   | \$760,000   | \$620,000   | \$380,000   | \$190,000   |
| 70 - 74          | \$1,750,000 | \$600,000   | \$475,000   | \$380,000   | \$210,000   | \$105,000   |
| 75 - 79          | \$1,000,000 | \$160,000   | \$145,000   | \$130,000   | \$80,000    | \$40,000    |
| 80+              | \$300,000   | \$50,000    | \$50,000    | \$50,000    | \$50,000    | \$25,000    |

**Note:** The age of the retired player at diagnosis (not the age when applying for a monetary award) is used to determine the monetary amount awarded.

#### **18. How does the number of seasons a retired player played affect a monetary award?**

Awards are reduced for retired players who played less than five "Eligible Seasons." The Settlement uses the term "Eligible Season" to count the seasons in which a retired player played or practiced in the NFL or AFL. A retired player earns an Eligible Season for:

- Each season where he was on an NFL or AFL Member Club's "Active List" for either three or more regular season or postseason games, or
- Where he was on an Active List for one or more regular or postseason games and then spent two regular or postseason games on an injured reserve list or inactive list due to a concussion or head injury.
- A retired player also earns one-half of an Eligible Season for each season where he was on an NFL or AFL Member Club's practice, developmental or taxi squad for at least eight games, but did not otherwise earn an Eligible Season.

The "Active List" means the list of all players physically present, eligible and under contract to play for an NFL or AFL Member Club on a particular game day within any applicable roster or squad limits in the applicable NFL or AFL Constitution and Bylaws.

Time spent playing or practicing in the World League of American Football, NFL Europe League and NFL Europa League does not count towards an Eligible Season.



The table below lists the reductions to a retired player's (or his Representative Claimant's) monetary award if the retired player has less than five Eligible Seasons. To determine the total number of Eligible Seasons credited to a retired player, add together all of the earned Eligible Seasons and half Eligible Seasons. For example, if a retired player earned two Eligible Seasons and three half Eligible Seasons, he will be credited with 3.5 Eligible Seasons.

| NUMBER OF ELIGIBLE SEASONS | PERCENTAGE OF REDUCTION |
|----------------------------|-------------------------|
| 4.5                        | 10%                     |
| 4                          | 20%                     |
| 3.5                        | 30%                     |
| 3                          | 40%                     |
| 2.5                        | 50%                     |
| 2                          | 60%                     |
| 1.5                        | 70%                     |
| 1                          | 80%                     |
| .5                         | 90%                     |
| 0                          | 97.5%                   |

**19. How do prior strokes or traumatic brain injuries of a retired player affect a monetary award?**

It depends. A retired player's monetary award (or his Representative Claimant monetary award) will be reduced by 75% if he experienced: (1) a medically diagnosed stroke that occurred before or after the time the retired player played NFL football, but before he received a Qualifying Diagnosis; or (2) a severe traumatic brain injury unrelated to NFL football that occurred during or after the time the retired player played NFL football, but before he received a Qualifying Diagnosis.

The award will not be reduced if the retired player (or his Representative Claimant) can show by clear and convincing evidence that the stroke or traumatic brain injury is not related to the Qualifying Diagnosis.

**20. How is a retired player's monetary award affected if he does not participate in the BAP program?**

It depends on when the retired player receives his Qualifying Diagnosis and the nature of the diagnosis. There is a 10% reduction to the monetary award only if the retired player:

- Did not receive a Qualifying Diagnosis prior to **July 7, 2014**, and
- Does not participate in the BAP, and
- Receives a Qualifying Diagnosis (other than ALS) after his deadline to receive a BAP baseline assessment examination.

**21. Can I receive a monetary award even though the retired player is dead?**

Yes. Representative Claimants for deceased retired players with a Qualifying Diagnoses will be eligible to receive monetary awards. If the deceased retired player died before January 1, 2006, however, the Representative Claimant will only receive a monetary award if the Court determines that a wrongful death or survival claim is allowed under applicable state law.

[Derivative Claimants](#) [\(link to question 6\)](#) also will be eligible for a total award of 1% of the monetary award that the Representative Claimant for the deceased retired player receives.

Representative and Derivative Claimants will also need to [register](#) [\(link to sign-up page\)](#) for Settlement benefits. Registration for benefits will not be available until after Final Settlement Approval. **Representative and Derivative Claimants can provide their name and contact information now [here](#) [\(link to sign-up page\)](#) or by calling 1-855-887-3485. This ensures that they will receive additional notice about the registration process and deadlines when it becomes available.**

**22. Will this Settlement affect a retired player's participation in NFL or NFLPA-related benefits programs?**

No. The Settlement benefits are completely independent of any benefits programs that have been created by or between the NFL and the NFL Players Association. This includes the 88 Plan (Article 58 of the 2011 Collective Bargaining Agreement) and the Neuro-Cognitive Disability Benefit (Article 65 of the 2011 Collective Bargaining Agreement).

**Note:** The Settlement ensures that a retired player who has signed, or will sign, a release as part of his Neuro-Cognitive Disability Benefit application, will not be denied Settlement benefits.

**23. Will this Settlement prevent retired players from bringing workers' compensation claims?**

No. Claims for workers' compensation will not be released by this Settlement.

## **EDUCATION FUND**

**24. What types of education programs are supported by the Settlement?**

The Settlement will provide \$10 million in funding to support education programs promoting safety and injury prevention with respect to football players, including safety-related initiatives in youth football, the education of retired players regarding the NFL's medical and disability programs and other educational programs and initiatives.

Retired players will be able to actively participate in such initiatives if they desire.

## **REMAINING IN THE SETTLEMENT**

**25. What am I giving up to stay in the Settlement Class?**

Unless you [exclude yourself](#) [\(link to question 30\)](#) (opt out) from the Settlement, you cannot sue the NFL Parties, the Member Clubs, or related individuals and entities, or be part of any other lawsuit against the NFL Parties about the issues in this case. This means you give up your right to continue to litigate any claims related to this Settlement, or file new claims, in any court or in any proceeding at any time. **However, the Settlement does not release any claims for [workers' compensation](#) [\(link to question 23\)](#) or claims alleging entitlement to NFL medical and disability benefits available under the Collective Bargaining Agreement.**

Please note that certain Plaintiffs also sued the football helmet manufacturer Riddell and certain related entities (specifically, Riddell, Inc., Riddell Sports Group Inc., All American Sports Corporation, Easton-Bell Sports, Inc., EB Sports Corp., Easton-Bell Sports, LLC and RBG Holdings Corp.). **They are not parties to this Settlement and claims against them are not released by this Settlement.**

Article XVIII of the Settlement Agreement contains the complete text and details of what Settlement Class Members give up unless they exclude themselves (opt out) from the Settlement, so please read it carefully. The Settlement Agreement is available [here \(link to Court Documents Page\)](#). The Settlement Agreement is also on file with the [Clerk of the Court for the U.S. District Court for the Eastern District of Pennsylvania \(link to question 35\)](#). You can also get this information by calling **1-855-887-3485**. If you have any questions you can talk to the law firms listed [here \(link to question 33\)](#) for free or you can talk to your own lawyer if you have questions about what this means.

## HOW TO GET BENEFITS

### 26. How do I get Settlement benefits?

To get benefits, you will need to register. This is true for all Settlement Class Members, including Representative and Derivative Claimants. Registration for benefits will not begin until after Final Settlement Approval. If and when that occurs, further notice will be provided about the registration process and deadlines. **However, you may provide your name and contact information now [here \(link to Sign-Up Page\)](#) or by calling 1-855-887-3485. This ensures that you will receive additional notice about the registration process and deadlines when that becomes available.** To receive any Settlement benefits, you must register on or before 180 days from the date that further notice about the registration process and deadlines is posted [here \(link to question 40\)](#). Information about the registration deadline will also be available by calling **1-855-887-3485**.

### 27. Is there a time limit for Retired NFL Football Players and Representative Claimants to file claims for monetary awards?

Yes. Retired NFL Football Players and Representative Claimants for retired players who are diagnosed by the date of Final Settlement Approval must submit claims for monetary awards within two years of the date that further notice about the registration process and deadlines is posted [here \(link to question 40\)](#). Retired NFL Football Players and Representative Claimants for retired players who are diagnosed after the date of Final Settlement Approval have two years from the date of diagnosis to file claims. This deadline may be extended up to an additional two years upon a showing of substantial hardship.

Derivative Claimants must submit claims no later than 30 days after a Retired NFL Football Player or a Representative Claimant receives notice of an entitlement to a monetary award. All claims must be submitted by the end of the 65-year term of the Monetary Award Fund.

### 28. Can I re-apply for compensation if my claim is denied?

Yes. A Settlement Class Member who submits a claim for a monetary award that is denied can re-apply in the future should the Retired NFL Football Player's medical condition change.

### 29. Can I appeal the determination of my monetary award claim?

Yes. The Settlement establishes an independent process for a Settlement Class Member to appeal the denial of a monetary award claim or the amount of the monetary award.

## EXCLUDING YOURSELF (OPTING OUT) FROM THE SETTLEMENT

If you want to retain the right to sue the NFL Parties about the legal issues in this case, then you must take steps to remove yourself from the Settlement. You may do this by asking to be excluded from—opting out of—the Settlement Class. If you exclude yourself (opt out), you cannot receive benefits from this Settlement.

### 30. How do I get out of the Settlement?

On or before **October 14, 2014**, you must mail a letter or other written document to the Claims Administrator requesting exclusion from the Settlement Class. Your request must include:

- Your name, address, telephone number, and date of birth;
- A copy of your driver's license or other government issued identification;
- A statement that "I wish to exclude myself from the Settlement Class in *In re: National Football League Players' Concussion Injury Litigation*, No. 2:12-md-02323" (or substantially similar clear and unambiguous language); and
- Your signature by hand, and the date on which you signed it (even if represented by an attorney).

You must mail your exclusion (opt out) request, postmarked on or before **October 14, 2014**, to:

NFL Concussion Settlement  
P.O. Box 25369  
Richmond, VA 23260

Your request to exclude yourself (opt out) is not effective unless and until the District Court grants Final Approval.

### 31. If I do not exclude myself (opt out), can I sue the NFL Parties for the same thing later?

No. Unless you exclude yourself (opt out), you give up the right to sue the NFL Parties for all of the claims that this Settlement resolves. If you want to maintain your own lawsuit relating to the claims released by the Settlement, then you must exclude yourself (opt out) on or before **October 14, 2014**.

### 32. If I exclude myself (opt out), can I still get benefits from this Settlement?

No. **If you exclude yourself (opt out) from the Settlement you will not get any Settlement benefits.** You will not be eligible to receive a monetary award or participate in the Baseline Assessment Program.

## THE LAWYERS REPRESENTING YOU

### 33. Do I have a lawyer in the case?

The Court has appointed a number of lawyers to represent all Settlement Class Members as "Co-Lead Class Counsel," "Class Counsel" and "Subclass Counsel." They are:

|                                                |                                    |
|------------------------------------------------|------------------------------------|
| Christopher A. Seeger<br>Co-Lead Class Counsel | Sol Weiss<br>Co-Lead Class Counsel |
|------------------------------------------------|------------------------------------|

|                                                                                                                                                    |                                                                                                                                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| SEEGER WEISS LLP<br>77 Water Street<br>New York, NY 10005                                                                                          | ANAPOL SCHWARTZ<br>1710 Spruce Street<br>Philadelphia, PA 19103                                                                   |
| Steven C. Marks<br>Class Counsel<br>PODHURST ORSECK P.A.<br>City National Bank Building<br>25 W. Flagler Street, Suite 800<br>Miami, FL 33130-1780 | Gene Locks<br>Class Counsel<br>LOCKS LAW FIRM<br>The Curtis Center, Suite 720 East<br>601 Walnut Street<br>Philadelphia, PA 19106 |
| Arnold Levin<br>Counsel - Subclass 1<br>LEVIN FISHBEIN SEDRAN &<br>BERMAN<br>510 Walnut Street, Suite 500<br>Philadelphia, PA 19106                | Dianne M. Nast<br>Counsel - Subclass 2<br>NAST LAW LLC<br>1101 Market Street, Suite 2801<br>Philadelphia, Pennsylvania 19107      |

You will not be charged for contacting these lawyers. If you are represented by your own attorney, you should contact that attorney to discuss the proposed Settlement. You do not have to hire your own attorney to participate in the Settlement program, but the administrators of the Settlement cannot provide you with any legal advice or answer questions that depend upon your individual factual circumstances. If you do not already have your own attorney, you may hire one at your own expense.

#### **34. How will the lawyers be paid?**

At a later date to be determined by the Court, Co-Lead Class Counsel, Class Counsel and Subclass Counsel will ask the Court for an award of attorneys' fees and reasonable costs. The NFL Parties have agreed not to oppose or object to the request for attorneys' fees and reasonable incurred costs if the request does not exceed \$112.5 million. These fees and incurred costs will be paid separately by the NFL Parties and not from the Baseline Assessment Program Fund, Education Fund or Monetary Award Fund. Settlement Class Members will have an opportunity to comment on and/or object to this request at an appropriate time. Ultimately, the award of attorneys' fees and reasonable costs to be paid by the NFL Parties is subject to the approval of the Court.

After Final Settlement Approval, Co-Lead Class Counsel may ask the Court to set aside up to five percent of each monetary award and derivative claimant award to facilitate the Settlement program and related efforts of Co-Lead Class Counsel, Class Counsel and Subclass Counsel. If approved, this money would be held in a separate fund overseen by the Court. Any future request for a set-aside will describe: (1) the proposed amount; (2) how the money will be used; and (3) any other relevant information. This "set-aside" would come out of the claimant's attorney's fee if represented by individual counsel or, if not represented, out of the monetary award and derivative claimant award itself. No money will be held back or set aside from any award without a Court order. The set-aside is a matter between Class Counsel and individual counsel for Settlement Class Members. The NFL Parties do not take a position on the proposal.

### **OBJECTING TO THE SETTLEMENT**

#### **35. How do I tell the Court if I do not like the Settlement?**

If you have not excluded yourself (opted out), you may object to the Settlement or any part of it. The Court will consider your views. To object to the Settlement, you or your attorney must submit your written objection to the Court. The objection must include the following:

- The name of the case and multidistrict litigation, *In re: National Football League Players' Concussion Injury Litigation*, No. 2:12-md-02323;
- Your name, address, telephone number, and date of birth;
- If you are a Representative Claimant or Derivative Claimant, the name of the Retired NFL Football Player to whom you are related;
- Written statement or evidence establishing how you are a Settlement Class Member;
- A detailed statement of your objections, and the specific reasons for each such objection, including any facts or law you wish to bring to the Court's attention;
- Any other supporting papers, materials or briefs that you want the Court to consider in support of your objection; and
- Your signature by hand, and the date on which you signed it (even if represented by an attorney).

Attorneys filing objections on behalf of Settlement Class Members must follow the requirements in Section 14.3(b) of the Settlement Agreement.

You must mail your objection, postmarked on or before **October 14, 2014**, to:

| COURT                                                                                                                                                                                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Clerk of the District Court/NFL Concussion Settlement<br/> U.S. District Court for the Eastern District of Pennsylvania<br/> United States Courthouse<br/> 601 Market Street<br/> Philadelphia, PA 19106-1797</p> |

### 36. What is the difference between objecting to the Settlement and excluding myself (opting out)?

Objecting is simply telling the Court that you do not like something about the Settlement or want it to say something different. You can object only if you do not exclude yourself (opt out) from the Settlement Class. Excluding yourself (opting out) is telling the Court that you do not want to be part of the Settlement Class and you do not want to receive any Settlement benefits. If you exclude yourself (opt out), you have no basis to object because the case no longer affects you.

## THE COURT'S FAIRNESS HEARING

The Court will hold a hearing to decide whether to approve the Settlement. You may attend and you may ask to speak, but you do not have to. The Court will determine if you are allowed to [speak](#) [\(link to question 39\)](#) if you request to do so.

### 37. When and where will the Court hold a Fairness Hearing concerning the Settlement?

The Court will hold the Fairness Hearing on **Wednesday, November 19, 2014 at 10:00 a.m.** at the United States Courthouse, 601 Market Street, Philadelphia, Pennsylvania 19106 in Courtroom 7B. The hearing may be moved to a different date or time without additional notice, so it is a good idea to check [www.NFLConcussionSettlement.com](http://www.NFLConcussionSettlement.com) or call **1-855-887-3485**. At this hearing, the Court will hear evidence about whether the Settlement is fair, reasonable, and adequate. If there are objections, the Court will consider them and may elect to listen to people who have asked to speak at the hearing. After the hearing, the Court will decide whether to approve the Settlement. We do not know how long the decision will take.

After the Fairness Hearing, the Court will consider the request for [attorneys' fees and reasonable costs \(link to question 34\)](#) by Co-Lead Class Counsel, Class Counsel and Subclass Counsel.

### 38. Do I have to attend the hearing?

No. Co-Lead Class Counsel, Class Counsel and Subclass Counsel will answer questions the Court may have. But you are welcome to attend at your own expense. If you timely file an objection, you do not have to come to Court to talk about it. As long as you filed your written objection on time, the Court will consider it. You may also have your own lawyer attend at your expense, but it is not necessary.

### 39. May I speak at the hearing?

On or before **November 3, 2014**, you may ask the Court for permission to speak at the Fairness Hearing. The Court will determine whether to grant you permission to speak. To make such a request, you must send written notice to the Court stating your intention to speak at the *In re: National Football League Players' Concussion Injury Litigation*, No. 2:12-md-02323 Fairness Hearing. Be sure to include your name, address, telephone number, and your signature. Your request to speak must be sent to the Court at [this address \(link to question 35\)](#).

## GETTING MORE INFORMATION

### 40. How do I get more information?

This Notice summarizes the proposed Settlement. More details are in the Settlement Agreement. You can get a copy of the Settlement Agreement [here \(link to Court Documents Page\)](#). The Settlement Agreement is also on file with the [Clerk of the Court for the U.S. District for the Eastern District of Pennsylvania \(link to question 35\)](#). You also may write with questions to NFL Concussion Settlement, P.O. Box 25369, Richmond, VA 23260 or call **1-855-887-3485**.

**PLEASE DO NOT WRITE OR TELEPHONE THE COURT OR THE NFL PARTIES FOR INFORMATION ABOUT THE SETTLEMENT OR THIS LITIGATION.**

| IMPORTANT DATES AND CONTACT INFORMATION                     |                                                                                                                                                                     |
|-------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Exclusion (Opt Out) Deadline</b>                         | October 14, 2014                                                                                                                                                    |
| <b>Objection Deadline</b>                                   | October 14, 2014                                                                                                                                                    |
| <b>Deadline to Request to Speak at the Fairness Hearing</b> | November 3, 2014                                                                                                                                                    |
| <b>Fairness Hearing</b>                                     | November 19, 2014                                                                                                                                                   |
| <b>Start of Registration Period</b>                         | The date the announcement of the registration process is posted on the Settlement Website. (This will occur following Final Settlement Approval after all appeals.) |
| <b>Registration Deadline</b>                                | 180 days after the start of the registration period                                                                                                                 |



|                                   |                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                   |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| <b>Deadline to Receive a BAP</b>  | <ul style="list-style-type: none"> <li>For retired players age 43 or older: Within two years of Final Settlement Approval</li> <li>For retired players under age 43: Within ten years of Final Approval or before age 45, whichever comes sooner</li> </ul>                                                                                                                                    |                                                                                                                                   |
| <b>Deadline to Submit a Claim</b> | <ul style="list-style-type: none"> <li>For retired players (and their Representative Claimants) diagnosed by the date of Final Settlement Approval: Within two years from the start of the registration period</li> <li>For retired players (and their Representative Claimants) diagnosed after the date of Final Settlement Approval: Within two years from the date of diagnosis</li> </ul> |                                                                                                                                   |
| <b>Claims Administrator</b>       | <b>NFL Concussion Settlement</b><br><b>P.O. Box 25369</b><br><b>Richmond, VA 23260</b><br><b>Tel: 1-855-887-3485</b>                                                                                                                                                                                                                                                                           |                                                                                                                                   |
| <b>Court</b>                      | Clerk of the District Court/NFL Concussion Settlement<br>U.S. District Court for the Eastern District of Pennsylvania<br>United States Courthouse<br>601 Market Street<br>Philadelphia, PA 19106-1797                                                                                                                                                                                          |                                                                                                                                   |
| <b>Class Counsel</b>              | Christopher A. Seeger<br>Co-Lead Class Counsel<br>SEEGER WEISS LLP<br>77 Water Street<br>New York, NY 10005                                                                                                                                                                                                                                                                                    | Sol Weiss<br>Co-Lead Class Counsel<br>ANAPOL SCHWARTZ<br>1710 Spruce Street<br>Philadelphia, PA 19103                             |
|                                   | Steven C. Marks<br>Class Counsel<br>PODHURST ORSECK P.A.<br>City National Bank Building<br>25 W. Flagler Street, Suite 800<br>Miami, FL 33130-1780                                                                                                                                                                                                                                             | Gene Locks<br>Class Counsel<br>LOCKS LAW FIRM<br>The Curtis Center, Suite 720 East<br>601 Walnut Street<br>Philadelphia, PA 19106 |
|                                   | Arnold Levin<br>Counsel - Subclass 1<br>LEVIN FISHBEIN SEDRAN & BERMAN<br>510 Walnut Street, Suite 500<br>Philadelphia, PA 19106                                                                                                                                                                                                                                                               | Dianne M. Nast<br>Counsel - Subclass 2<br>NAST LAW LLC<br>1101 Market Street, Suite 2801<br>Philadelphia, Pennsylvania 19107      |

## QUESTIONS IN ADDITION TO THOSE IN THE LONG FORM NOTICE

### 41. If a player is deceased, how does a Representative Claimant prove that the player suffered from a Qualifying Diagnosis at the time of or before his death?

The proof a Representative Claimant must submit to show that a deceased player received a Qualifying Diagnosis depends on the date of the player's death and the type of injury.

If the player dies before the Effective Date of the Settlement Agreement, the Representative Claimant may establish Level 1.5 Neurocognitive Impairment, Level 2 Neurocognitive Impairment, Alzheimer's Disease, Parkinson's Disease, or ALS by submitting medical records showing a diagnosis of such condition made before the player died. The diagnosis must have been made by properly credentialed physicians, as described in Section 6.3(e) of the Settlement Agreement.



The Representative Claimant of a player who died before the date of Preliminary Approval (July 7, 2014) may establish Death with CTE by submitting medical records showing a diagnosis of Death with CTE made by a board-certified neuropathologist after the player's death. Players who died after the date of Preliminary Approval are not eligible for benefits for Death with CTE.

All claimants, including Representative Claimants of deceased players, also must submit a Diagnosing Physician Certification signed by the physician who made the Qualifying Diagnosis, except that Representative Claimants of players who die before the Effective Date do not have to submit a Diagnosing Physician Certification if the physician who made the Qualifying Diagnosis also died before the Effective Date, or was deemed legally incapacitated or incompetent prior to that date, but they do have to submit evidence of the physician's death, incapacity or incompetence, and of his or her qualifications.

A Representative Claimant of a player who died before January 1, 2006 also must establish that the claim is not time-barred.

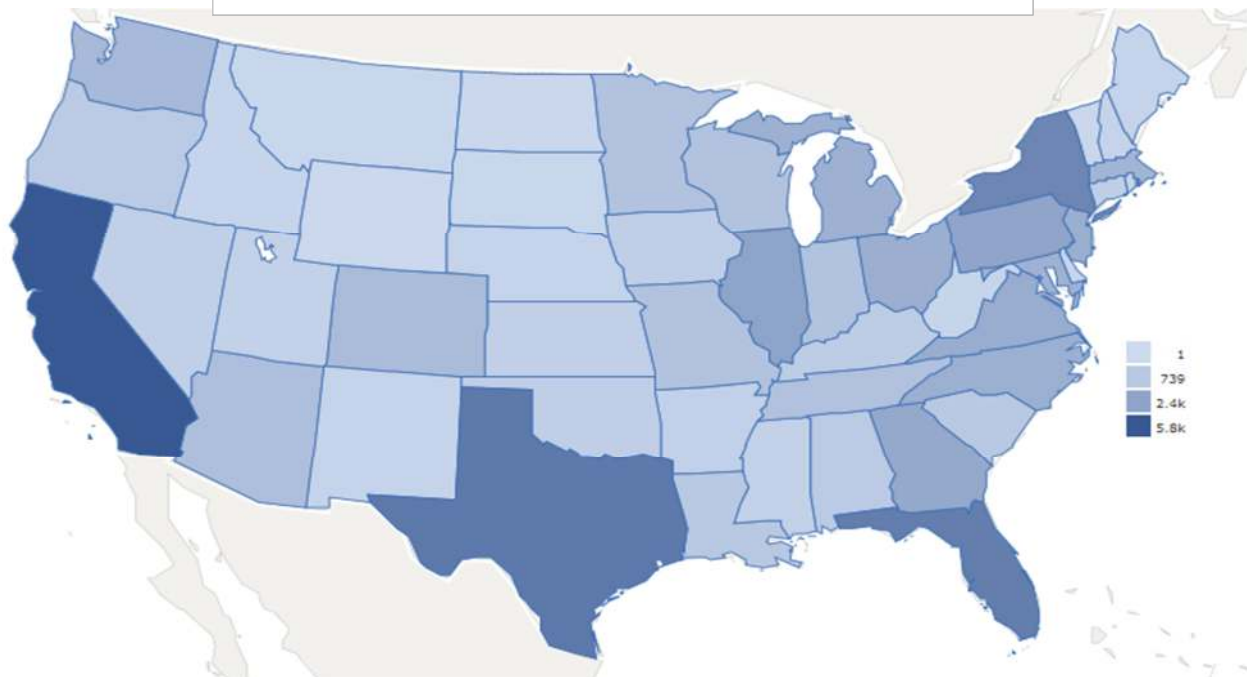
# ATTACHMENT 7

**NFL****CONCUSSION SETTLEMENT**IN RE: NATIONAL FOOTBALL LEAGUE PLAYERS' CONCUSSION INJURY LITIGATION  
No. 2:12-md-02323 (E.D. PENN.)**NFL 1002****CLAIMS ADMINISTRATOR UPDATE**

(THROUGH 10/14/14)

**TABLE 1****WEBSITE VISITORS BY STATE**

| Row | Location       | Unique Visitors | Visits        | Average Actions <sup>1</sup><br>Per Visit | Average Time<br>(Minutes) | Bounce Rate <sup>2</sup> |
|-----|----------------|-----------------|---------------|-------------------------------------------|---------------------------|--------------------------|
| 1.  | California     | 5,575           | 5,817         | 2                                         | 1                         | 77.0%                    |
| 2.  | Texas          | 4,066           | 4,310         | 2                                         | 1                         | 74.1%                    |
| 3.  | Florida        | 3,887           | 4,087         | 2                                         | 1                         | 77.6%                    |
| 4.  | New York       | 3,484           | 3,698         | 2                                         | 1                         | 75.4%                    |
| 5.  | Illinois       | 2,291           | 2,364         | 2                                         | <1                        | 80.4%                    |
| 6.  | Pennsylvania   | 2,231           | 2,288         | 2                                         | <1                        | 79.8%                    |
| 7.  | Georgia        | 2,016           | 2,144         | 2                                         | 1                         | 74.8%                    |
| 8.  | Virginia       | 1,898           | 1,971         | 1                                         | <1                        | 81.8%                    |
| 9.  | New Jersey     | 1,810           | 1,874         | 2                                         | <1                        | 80.8%                    |
| 10. | Ohio           | 1,810           | 1,867         | 2                                         | 1                         | 77.1%                    |
| 11. | North Carolina | 1,748           | 1,837         | 2                                         | 1                         | 79.5%                    |
| 12. | Michigan       | 1,706           | 1,757         | 2                                         | <1                        | 79.7%                    |
| 13. | Unknown        | 7,605           | 8,288         | 3                                         | 3                         | 75.1%                    |
| 14. | Other          | 22,862          | 23,646        | 2                                         | <1                        | 79.3%                    |
| 15. | <b>Totals</b>  | <b>62,989</b>   | <b>65,948</b> | <b>2</b>                                  | <b>1</b>                  | <b>77.9%</b>             |

<sup>1</sup> An action occurs anytime the visitor views a new webpage, follows a link or takes any other action on the website.<sup>2</sup> The Bounce Rate is the percentage of visitors who leave website after viewing only one page.**CHART 1: WEBSITE VISITS FREQUENCY MAP**

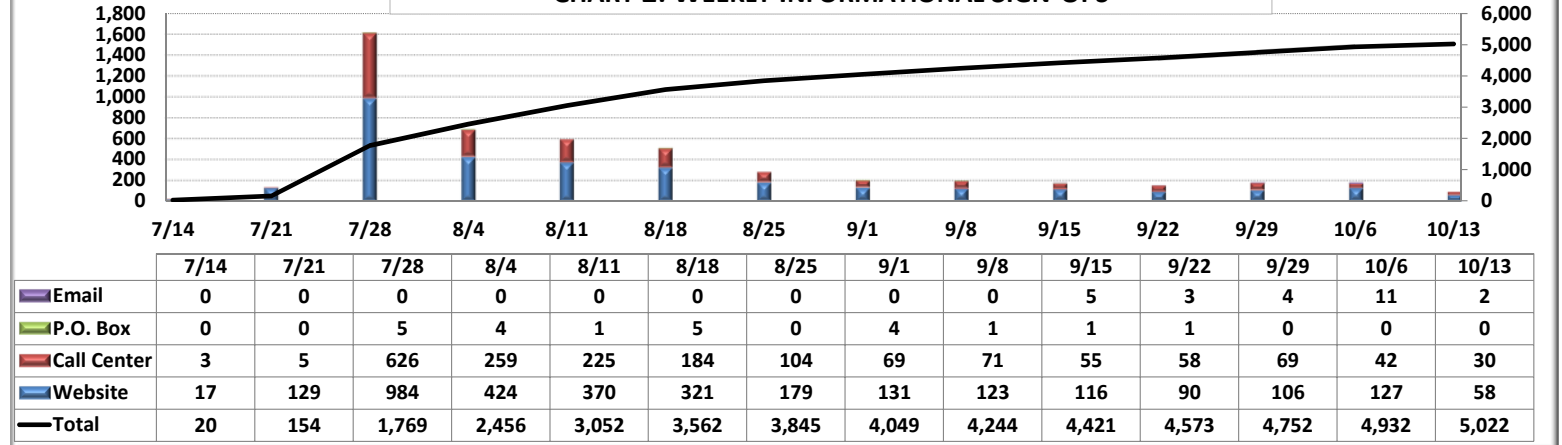
JA4232

**NFL****CONCUSSION SETTLEMENT**IN RE: NATIONAL FOOTBALL LEAGUE PLAYERS' CONCUSSION INJURY LITIGATION  
No. 2:12-md-02323 (E.D. PENN.)**NFL 1002****CLAIMS ADMINISTRATOR UPDATE**

(THROUGH 10/14/14)

**TABLE 2****SIGN-UPS FOR FUTURE INFORMATION**

| Row | Sign-Up Method | Retired Player | Authorized Rep | Attorney for Player or Family | Family Member | Other/Unknown | Total        |
|-----|----------------|----------------|----------------|-------------------------------|---------------|---------------|--------------|
| 1.  | Website        | 2,045          | 209            | 77                            | 668           | 176           | 3,175        |
| 2.  | Call Center    | 1,048          | 10             | 18                            | 608           | 116           | 1,800        |
| 3.  | P.O. Box       | 10             | 0              | 4                             | 8             | 0             | 22           |
| 4.  | Email          | 13             | 1              | 5                             | 4             | 2             | 25           |
| 5.  | <b>Totals</b>  | <b>3,116</b>   | <b>220</b>     | <b>104</b>                    | <b>1,288</b>  | <b>294</b>    | <b>5,022</b> |

**CHART 2: WEEKLY INFORMATIONAL SIGN-UPS****TABLE 3****CLAIMANT CORRESPONDENCE AND CLAIMS ADMINISTRATOR RESPONSES**

| Row | Representation Status | Letters / Emails Received | Responses Sent | Response Not Required | Response FAQs <sup>3</sup> |          |          |           |          |
|-----|-----------------------|---------------------------|----------------|-----------------------|----------------------------|----------|----------|-----------|----------|
|     |                       |                           |                |                       | FAQ 6                      | FAQ 14   | FAQ 21   | FAQ 26    | Other    |
| 1.  | Pro Se or Unknown     | 53                        | 43             | 10                    | 6                          | 1        | 3        | 9         | 2        |
| 2.  | Represented           | 13                        | 8              | 5                     | 1                          | 0        | 0        | 1         | 0        |
| 3.  | <b>Totals</b>         | <b>66</b>                 | <b>51</b>      | <b>15</b>             | <b>7</b>                   | <b>1</b> | <b>3</b> | <b>10</b> | <b>2</b> |

<sup>3</sup> The sum of all Response FAQs will not equal the total number of responses sent, because some responses require reference to multiple FAQs and other responses do not require any reference to FAQs.

# ATTACHMENT 8

**NFL****CONCUSSION SETTLEMENT**IN RE: NATIONAL FOOTBALL LEAGUE PLAYERS' CONCUSSION INJURY LITIGATION  
No. 2:12-md-02323 (E.D. PENN.)

[DATE]

[SETTLEMENT CLASS MEMBER NAME]

[ADDRESS]

[CITY, STATE ZIP]

**RE: In re: National Football League Players' Concussion Injury Litigation**  
**Case No. 2:12-md-02323 (E.D. Penn.)**

Dear [Mr./Ms.] [NAME]:

We are the Claims Administrator for the proposed settlement of the NFL concussion litigation. We received your letter asking **[INSERT SUBJECT OF INQUIRY]**. We can provide you with basic information regarding the Settlement, but we cannot give you legal advice on any matter. If you are represented by an attorney, you should consult with that attorney on questions related to your claim and your particular circumstances.

We believe that your question is covered by this Frequently Asked Question and its response:

**[INSERT FAQ(S)]**

You can find more information about the Settlement by visiting the Settlement website at [www.NFLConcussionSettlement.com](http://www.NFLConcussionSettlement.com). Click on the "FAQs" link at the top of the home page at that site to see the entire set of Frequently Asked Questions.

We will keep a record of your name and address for you to receive more information in the future on how to register for benefits with the Settlement after it receives final approval from the courts. If your address changes, please let us know. If you have any additional questions, you may reach us at 1-855-887-3485 or by email at [ClaimsAdministrator@NFLConcussionSettlement.com](mailto:ClaimsAdministrator@NFLConcussionSettlement.com).

Thank you,

Claims Administrator  
NFL Concussion Settlement

# Exhibit 4

**UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF PENNSYLVANIA**

IN RE: NATIONAL FOOTBALL LEAGUE PLAYERS'  
CONCUSSION INJURY LITIGATION

Kevin Turner and Shawn Wooden, on behalf of themselves  
and others similarly situated,

Plaintiffs,

v.

National Football League and NFL Properties LLC,  
successor-in-interest to NFL Properties, Inc.,

Defendants.

No. 2:12-md-02323-AB

MDL No. 2323

**Hon. Anita B. Brody**

CIVIL ACTION NO: 2:14-cv-  
00029-AB

THIS DOCUMENT RELATES TO:  
ALL ACTIONS

**SUPPLEMENTAL DECLARATION OF MEDIATOR AND FORMER UNITED STATES  
DISTRICT COURT JUDGE LAYN R. PHILLIPS IN SUPPORT OF FINAL APPROVAL  
OF SETTLEMENT AND CERTIFICATION OF CLASS AND SUBCLASSES**

Layn R. Phillips declares as follows:

1. Shortly after the Court heard oral argument on Defendants' motions to dismiss Plaintiffs' claims in this litigation on grounds of preemption under Section 301 of the Labor Management Relations Act, I was appointed by the Court to serve as the mediator in the negotiations between the Plaintiff Class and the National Football League and NFL Properties, LLC (collectively, the "NFL Parties"). I am a former United States District Court Judge. Previously, I submitted a declaration in support of preliminary approval of the proposed class



action settlement between the parties [ECF No. 6073-4]. My credentials, the procedural background regarding my appointment to serve as the mediator, and the details concerning my role in the mediation sessions in this matter are set forth in my earlier declaration and I incorporate that declaration herein by reference. I submit this Supplemental Declaration in support of Class Counsel's Motion for Final Approval of the Settlement dated June 25, 2014 [ECF No. 6073-2], which was preliminarily approved on July 7, 2014 [ECF No. 6084, ¶ 3(b)], and Certification of the Class and Subclasses. Without waiver of the mediation privilege, I describe below the reasons for my views.

2. Beginning in July, 2013, at the request of the Court, I conducted extensive mediation sessions with the parties jointly and separately over the course of approximately six months, overseeing the negotiations that resulted in the class settlement filed with the Court on January 6, 2014 [ECF No. 5634]. The Court agreed to hold in abeyance its decision on preemption until September 3, 2013. The parties negotiated this Settlement under my supervision. Each side was represented by zealous and highly competent counsel with stellar reputations. With respect to Plaintiffs' counsel, they consistently and passionately expressed the need to protect the interests of the retirees and their families and fought hard for the greatest possible benefits for all of the players in the context of a settlement that the NFL Parties could accept. I am satisfied that the demands (although some were rejected by the NFL) made by Plaintiffs' counsel represented every reasonable interest and injury claimed in this litigation. In a negotiated resolution, neither side receives all that they want.

3. It was evident throughout the mediation process that Plaintiffs' counsel were prepared to litigate and try these cases, and face the risk of losing with no chance to recover for



7. In order to ensure the adequate and unconflicted representation of all of the proposed Class Members, Plaintiffs agreed to create two proposed separate subclasses, each represented by separate subclass counsel – (1) to include those Class Members who were not diagnosed with a qualifying injury; and (2) to encompass Class Members diagnosed with a qualifying injury. Plaintiffs believed – and I agreed – that having these two separate subclasses

-4-  
JA4240

would ensure that any final resolution did not favor retired players who are currently suffering from compensable injuries from those who have not been diagnosed and who may not develop compensable injuries for years to come, if ever. Subclass Counsel participated in the negotiations on behalf of their respective subclasses and were involved throughout the mediation process.

8. Plaintiffs' Co-Lead Counsel demanded that a range of injuries consistent with those alleged in the Complaints be considered eligible for a monetary award. They were not able to achieve all that they asked for in the negotiations. Plaintiffs' actions throughout the negotiations reflected a sound appreciation of the scientific issues associated with their claims. They were aware of mainstream medical literature linking traumatic brain injury to an increase in the likelihood for developing early-onset dementia, Alzheimer's Disease, Parkinson's Disease, and ALS. Informed by their experts and based on their investigation, the Plaintiffs concluded that it was fair to compensate retired players for those diagnoses as part of the Settlement.

9. Plaintiffs' Co-Lead Counsel passionately advocated for significant, "full value" awards for dementia, Alzheimer's Disease, Parkinson's Disease, and ALS. Importantly, they also insisted that even though, at present, not every retired player has been diagnosed with a qualifying injury, all retired players must be eligible to seek a monetary award if and when their symptoms progress to a compensable level. In addition, it was very important to the Plaintiffs that players be able to seek a supplemental monetary award if their condition worsens.

10. Each side relied upon their respective independent economists and actuaries to model the sufficiency of funding necessary to compensate Plaintiffs for these injuries at various monetary award levels throughout the life of the Settlement.

11. With limited exception, the Settlement compensates retired players and their families for deficits and diseases that they suffered from while living. Though the pathological diagnosis of CTE is not compensated as an injury prospectively, severe cognitive impairments developed in living retired players, which have been associated with traumatic brain injury in the medical literature as well as more advanced forms of CTE, are compensated (*i.e.*, early and moderate dementia). Plaintiffs also were able to secure recovery for the families of those individuals who were deceased prior to preliminary approval and had a post-mortem diagnosis of CTE, and thus the “Death with CTE” injury definition was agreed to for pre-approval deaths with confirmed CTE from autopsy.

12. Class Counsel also demanded that retired players maintain their rights to pursue claims for worker’s compensation and benefits under all applicable Collective Bargaining Agreements and that their participation in the settlement not vitiate these rights. After robust negotiations on these points, the NFL Parties agreed not to enforce the releases and covenants not to sue that were previously executed by Class Members in connection with claims for the Neuro-Cognitive Disability Benefit under Article 65 of the current CBA. This was a major concession for the NFL Parties and a negotiating victory for the Plaintiffs, because these waivers would have deprived many retired players of substantial additional Settlement benefits.

13. As part of their negotiations, the parties agreed that the proposed Settlement will not require Class Members to prove that their injuries were caused by or even related to concussions suffered during NFL football play. Class Members will need only to demonstrate class membership and a qualifying injury in order to receive a monetary award. Appropriately, the parties, in consultation with their medical and actuarial experts, negotiated and agreed to four limited categories of downward adjustments, or offsets, that may be applied to all monetary

awards. These offsets include: the player's age, if 45 or older, at the time of diagnosis of a qualifying injury; the incidence of a stroke or traumatic brain injury unrelated to football (*e.g.*, a severe car accident); failure to participate in the BAP, which is designed to provide early detection of a qualifying injury; and the number of seasons of active participation in NFL football play (which the parties considered an objective substitute for exposure to injury).

14. In addition, the Plaintiffs proposed to incorporate into the Settlement a mechanism whereby an expert in lien resolution would negotiate on a global basis the reduction of certain governmental liens applicable to Class Members' monetary awards, which would in turn increase their individual net recoveries. Plaintiffs believed that it was unlikely that individual Class Members would be able to achieve this benefit on their own outside of the context of a class Settlement.

15. Moreover, the vast majority of Class Members will not be prevented from partaking in Settlement benefits due to applicable statutes of limitations.<sup>2</sup> Even if a player retired decades ago and never filed suit against the NFL Parties, he may still be entitled to a baseline neuropsychological and neurological examination and a monetary award.

16. Co-Lead Class Counsel and the NFL Parties fought hard to reach a consensus on a total settlement value. They worked with their experts to ensure there were sufficient funds to pay for evaluations of all living retired players eligible to be tested in the BAP and to pay the projected monetary awards. Ultimately, the parties agreed to \$765 million.

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<sup>2</sup> The only exception is for players who died before January 1, 2006, more than eight (8) years ago. The representatives of these players will have an opportunity, however, to demonstrate that their wrongful death or survival claim is not barred by governing state law.



Plaintiffs' claims could have been dismissed at this early stage of the litigation if the NFL Parties prevailed on the preemption issue." [ECF No. 6083, at 10].

21. Plaintiffs' counsel recognized significant additional legal and factual hurdles that Plaintiffs would have faced if they proceeded with the litigation. In addition to preemption, the NFL Parties could have asserted a defense of lack of causation. Plaintiffs risked not being able to prove that they suffered cognizable injuries *as a result of* the NFL Parties, let alone the concussions and sub-concussive hits they experienced while playing in the NFL as opposed to some cause unrelated to football or as a result of prior football experience such as in middle school, high school and college. Many members of the proposed class developed their symptoms later in life and therefore may have had difficulty proving that their alleged injuries are not a result of the normal aging process. More broadly, the science regarding concussions and sub-concussive hits and cognitive impairment is still evolving, which makes it more difficult to prove negligence or fraud the earlier a player played. The research is often contradictory, thereby creating additional hurdles for a successful prosecution of Plaintiffs' claims.

22. Plaintiffs faced other legal hurdles as well, including various statute of limitations arguments, statutory employer defense, and the assertion of the "assumption of risk" defense based on the argument that the retired NFL players knew at the time they played that football could be a dangerous activity and that the players assumed that risk when they chose to play.

23. Moreover, in a litigation of this size and complexity it is likely that, even if Plaintiffs succeeded at trial on the merits, payments to seriously injured players would not occur for many years, especially since the NFL Parties have appellate rights. By resolving Plaintiffs' claims through settlement, Plaintiffs' counsel sought to compensate impaired retired NFL players who desperately need money and other relief now in order to address their medical conditions.



They also ensured that compensation and medical testing will be available for those retired NFL players who are not impaired at present, but may become so in the future.

24. Like Plaintiffs, the NFL Parties also faced great risks if they chose to litigate these cases. There was a significant risk that the Court would not accept, in whole or in part, their preemption defense, which in turn would leave much of the case intact. The same was true of the NFL Parties' other legal defenses of statute of limitations and assumption of risk. If the NFL Parties did not succeed on dismissing all of these cases as a matter of law, they faced years of very expensive discovery and potentially hundreds or thousands of trials in state and federal courts around the country. Among Plaintiffs' many claims and allegations, the NFL Parties faced the risks of litigating issues relating to helmet safety standards and rules of football play. Each potential lawsuit carried with it the risk of a significant damage verdict and a negative precedent that could affect all cases that followed.

25. In short, both sides faced substantial risks if they chose to litigate these matters and tremendous benefits if they could fairly resolve their differences.

26. Based on my extensive experience as a mediator and former judge, my frequent and detailed discussions with the parties, and the information made available to me during the mediation, I believed then that the \$765 million proposed settlement reached in January, 2014, represented a fair and reasonable settlement given the substantial risks involved for both sides. That figure remains supportable today. Now that the parties have uncapped the Monetary Award Fund and eliminated the requirement from the earlier settlement that Class Members who receive monetary awards agree to release claims against the National Collegiate Athletic Association and/or other collegiate, amateur or youth football organizations and entities, the Settlement is even stronger for Plaintiffs.

27. This Settlement will benefit thousands of NFL retirees and their families. If the Settlement is approved, eligible retired NFL players immediately will be entitled to an innovative baseline testing program and, depending on their diagnosis, certain supplemental benefits for medical treatment and pharmaceuticals, as needed. In addition, players who are diagnosed with early or moderate dementia, ALS, Alzheimer's Disease, Parkinson's Disease, and certain players who died before Preliminary Approval and were diagnosed post-mortem with CTE will be eligible to receive significant cash awards, depending on the disease, the age of the player at diagnosis, the length of the player's career playing in the NFL and certain other relevant factors. The benefits will be made available promptly after the Effective Date of the Settlement and will remain available for 65 years, ensuring that players who appear healthy today but develop these kinds of medical issues in the future will have the comfort of knowing that compensation is available through the Settlement.

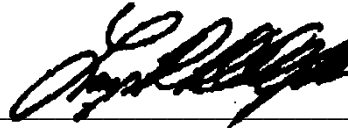
28. The Settlement also allocates substantial funding for education to advance the safety of the sport, including in youth football, and to educate retired players concerning available NFL medical and disability benefits programs and initiatives.

29. At the same time, the Settlement protects the rights of retired NFL players to seek benefits that have been collectively bargained between the NFL and the NFL Players Association, including pension benefits, and medical and disability benefits such as the 88 Plan and the Neuro-Cognitive Disability Benefit that was introduced in the 2011 Collective Bargaining Agreement. Plaintiffs' counsel fought hard to ensure that the retired NFL players could continue to apply for these extensive benefits, and the NFL Parties agreed that they would not enforce any release that had been signed by a class member in connection with applying for the Neuro-Cognitive Disability Benefit when he seeks to take part in the settlement benefits.

30. Therefore, for all of these reasons and the reasons in my earlier Declaration, I believe that the Settlement is fair and reasonable in light of the parties' claims and defenses, and the expense, uncertainty and time inherent in litigating the players' claims to judgment. In particular, it is my considered judgment that Plaintiffs would be unlikely to have obtained more money and benefits without going through years of discovery and trial, where they would face substantial risks of loss due to their inability to prove negligence or fraud on the part of the NFL Parties or judgments below what they will receive in this proposed Settlement. Moreover, the attendant delays presented by the likelihood of extended appellate practice further enhances the immediate benefits of the Settlement. I fully support Class Counsel's motion for Final Approval of the proposed Settlement and Certification of the Class and Subclasses.

I declare that the foregoing is true and correct.

Executed this 11<sup>th</sup> day of November 2014.



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LAYN R. PHILLIPS  
Former United States District Court Judge

# Exhibit 15

UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF PENNSYLVANIA

IN RE: NATIONAL FOOTBALL LEAGUE  
PLAYERS' CONCUSSION INJURY  
LITIGATION

No. 2:12-md-02323-AB

MDL No. 2323

Kevin Turner and Shawn Wooden,  
*on behalf of themselves and  
others similarly situated,*

Hon. Anita B. Brody

Plaintiffs,

Civil Action No. 2:14-cv-00029-AB

v.

National Football League and  
NFL Properties, LLC,  
successor-in-interest to  
NFL Properties, Inc.,

Defendants.

THIS DOCUMENT RELATES TO:  
ALL ACTIONS

**DECLARATION OF KENNETH C. FISCHER, M.D.**

KENNETH C. FISCHER, M.D., hereby declares as follows:

1. I have personal knowledge concerning the matters addressed herein, and submit this declaration in connection with Plaintiffs' motion for approval of the proposed settlement of claims in this litigation. If called as a witness, I could and would testify competently to the facts and opinions set forth in this declaration. I hold all of the opinions set forth herein to a reasonable degree of medical certainty.

2. I am a board-certified neurologist with 39 years of clinical practice experience. After earning my medical degree from Duke University in 1971, I spent four years at the University of Miami with one year of internal medicine and three years of

neurology training. Immediately thereafter, in 1975, I became a member of the faculty of the University of Miami School of Medicine Department of Neurology. Currently I am a member of the teaching faculty with the title of Voluntary Associate Professor of Neurology.

3. For the past eight years I have been on the Executive Committee of the Board of Trustees of Catholic Health Services, as well as Chief of Professional Affairs of that organization, which owns and administers more than 30 facilities in the South and Central Florida region, including rehabilitation hospitals, skilled nursing facilities, intermediate care facilities, and outpatient home health agencies. A substantial number of the patients serviced by these facilities have suffered traumatic brain injuries requiring acute rehabilitation and long-term care. I have also served as a special senior consultant for neurological injuries for the Veterans Administration Hospital from 1978 through 2002. Again, a large number of the individuals evaluated were diagnosed with traumatic brain injuries. Also, I have served for the last eight years as a designated “EMA” Expert Medical Advisor, for the judiciary in the State of Florida for workers compensation injuries. Again, a significant percentage of these patients have been victims of a traumatic brain injury. I am a practicing neurologist with a very extensive practice and I have personally evaluated thousands of patients with all forms of traumatic brain injury. Additional information concerning my education, training, and experience is reflected in my curriculum vitae, a copy of which is annexed hereto.

4. Traumatic Brain Injury, often referred to as “TBI”, is a serious medical condition throughout the world. In this country alone, more than 1 million people annually sustain traumatic brain injuries of various extents and etiologies. During

wartime, TBI is one of the most feared and common consequences, with many thousands of our veterans sustaining such injuries requiring long-term care. More recently, TBI has been more widely appreciated as a significant sequela of various contact sports, including football, boxing, soccer, and ice hockey. That reality was no doubt a predicate for the National Football Players Concussion Injury Litigation. It similarly underlies the Settlement that is before the Court.

5. While a single traumatic brain injury may cause the injured party to have some significant residual deficiency, aside from the very obvious substantial ones, the critical subgroup are those individuals who have sustained repeated clinical and subclinical traumatic brain injuries over a significant period of time. It is this group that composes the vast majority of individuals suffering substantial residual neurological and neuropsychological damage.

6. There are certain medically and scientifically well-defined syndromes that have been scientifically associated with repeated traumatic brain injury. These include amyotrophic lateral sclerosis (ALS or Lou Gehrig's disease), Parkinsonism, Alzheimer's disease, and dementia. *See Graves AB., et al. The Association Between Head Trauma and Alzheimer's Disease. Am. J. Epidemiol.* 1990;131(3):491 (controlled study revealing statistically significant association between severe head trauma and Alzheimer's disease); Chen H, et al., Head Injury and Amyotrophic Lateral Sclerosis, *Am. J. Epidemiol.* 2007;166(7):810-816 (threefold increased risk of ALS among people suffering more than one head injury); Al-Chalabi A and Leigh PN. Trouble on the pitch: are professional football players at increased risk of developing amyotrophic lateral sclerosis? *Brain* 2005;128:451-453 (nearly six-fold increased risk of ALS among Italian professional

soccer players and general population controls); Harris MA, et al. Head injuries and Parkinson's Disease in a case-control study. *Occup. Environ. Med.* 2013;70:839-44 (statistically significant association between Parkinson's disease and prior TBI, including remote mTBI and concussions); Goldman SM, et al. Head injury and Parkinson's disease risk in twins, *Ann. Neurol.* 2006;60:65-72 (three to fourfold increased risk of Parkinson's Disease in twin suffering TBI compared to sibling twin without TBI exposure).

7. These conditions have further been associated with mTBI, concussions, and/or football play. Harris A., 2013; Lehman EJ, et al. Neurodegenerative causes of death among retired National Football League players. *Neurology* 2012;79:1970-1974 (elevated neurodegenerative mortality among retired professional football players; approximately, four-fold increased risk of death from ALS and Alzheimer's disease among professional football players compared to general US population); Guskiewicz K., et al. Association between Recurrent Concussion and Late-Life Cognitive Impairment in Retired Professional Football Players. *Neurosurgery* 2005;57(4):718-724 (associating dementia-related syndromes in retired players with prior concussions; earlier Alzheimer's disease onset, and higher incidence, seen in younger retired player cohort); Lee YK, et al. Increased Risk of Dementia in Patients with Mild Traumatic Brain Injury: A Nationwide Cohort Study. *PLoS One* (2013);8:1-7 (statistically significant threefold increased risk of dementia in patients with prior reports of concussion and/or mTBI).

8. ALS, Parkinsonism, and Alzheimer's disease can be fairly diagnosed and confirmed by clinical and ancillary findings. They are specifically identified and compensated in the settlement agreement as qualifying diagnoses by reference to ICD-9/ICD-10 diagnosis codes. The documentation of these syndromes and diseases by



reference to ICD-9/ICD-10 diagnosis codes has become a standard practice in this country, one that virtually any physician would be expected to be familiar and skilled in.

9. There are other conditions that have been associated with concussions and TBI that are not among those specific diseases/syndromes, but which can be objectively delineated on neurological examination and neuropsychological testing. These conditions result in reduction of the individual's cognitive and functional capacity and can be categorized by the extent of the functional decline. The settlement appropriately recognizes and categorizes such individuals by gradations in the severity of their neurocognitive impairments. In particular, the settlement recognizes three grades of neurocognitive impairment: Level 1 Neurocognitive Impairment (moderate cognitive impairment), Level 1.5 Neurocognitive Impairment (early dementia), and Level 2 Neurocognitive Impairment (moderate dementia). These different categories have defined levels of deficit and dysfunction that can be confirmed by detailed neurological examination and concomitant neuropsychological testing, and reflect reasonable criteria and methods at ascertaining the level of impairments the settlement seeks to compensate.

10. The condition known as "CTE" (Chronic Traumatic Encephalopathy) more recently has been defined as a neurological condition, but only on postmortem testing. There is no diagnostic test to confirm that clinical condition in living patients, and CTE can only be properly identified and diagnosed on autopsy. Gardner A., et al. Chronic Traumatic Encephalopathy in Sport: a Systematic Review, *Br. J. Sports Med.* 2014;48:84–90.

11. Because CTE is not diagnosable in living patients, claims that a living player suffers from CTE cannot be medically confirmed. Current research into CTE—

essentially, case reports or series—has associated certain clinical symptoms retrospectively described by the family of deceased players (and non-players) as a potential clinical picture for CTE. The reported list of associated symptoms is long and, given its genesis, anecdotal. Though the type of long-term, prospective longitudinal studies that helped characterize the clinical picture for Alzheimer’s disease have yet to be done, these anecdotal accounts to researchers usefully collect the range of reports. It includes: memory impairment, executive dysfunction, impaired concentration/attention impairment, language impairment, visuospatial difficulties, visual impairment, apathy, depression, suicidality, aggressiveness, irritability, headaches, disinhibition, explosivity, mood instability, gait disturbance, tremors, muscle weakness and spasticity, a sensitivity to noise, chronic pain, dysnomia, peripheral nerve dysfunction, sleep dysfunction, and somatic disorders. The list is notably broad, and undeniably overlapping with a range of conditions widely suffered by and prevalent in the general, non-professional football US population. Prospective longitudinal studies to characterize the clinical picture of CTE need to be performed, and “[c]linical criteria for the diagnosis of CTE need to be established and tested.” McKee AC, et al. The Spectrum of Disease in Chronic Traumatic Encephalopathy. *Brain* (2013);136:43-64.

12. Though the settlement does not independently compensate mood and behavioral symptoms, review of the lengthy symptom list in the CTE literature reveals that the settlement quite specifically addresses the cognitive-based symptoms that have been reported for CTE and that are evaluated for Level 1, 1.5, and 2 Neurocognitive Impairment, namely memory impairment, executive dysfunction, impaired concentration/attention impairment, language impairment, visuospatial difficulties.

Settlement Agreement Exh. 1. In addition to cognitive impairment in multiple domains, mood and behavioral symptoms have been reported in association with earlier stages of CTE pathology (what the authors refer to as CTE I and II); individuals with more advanced CTE pathology (what the authors denote as CTE III and CTE IV) are reported to have suffered from dementia in their lives. McKee AC, 2013. This research further reflects a high prevalence of co-morbid conditions among patients studied that were determined post-mortem to have CTE that the settlement recognizes as Qualifying Diagnoses. McKee AC, 2013, reports that many of the subjects in the study that were determined to have CTE pathology also reflected pathology for other neurologic/neurodegenerative disease, including Alzheimer's disease, Parkinson's disease, ALS, and frontotemporal dementia. Thus, a range of cognitive impairments, of various gradations (including dementia), as well as the Qualifying Diagnoses of Alzheimer's disease, Parkinson's disease, and ALS, are reflected in the anecdotal clinical picture for CTE.

13. Accordingly, retired players who are diagnosed while living with similar and confirmed objective abnormalities in the various Neurocognitive Impairment groups, or by meeting the criteria for Alzheimer's, Parkinson's, or ALS—without regard to whether they have CTE pathology—will be compensated. Stated differently, those retired players with objective evidence of these conditions/diseases will not be excluded from the negotiated settlement even if they do not possess underlying CTE pathology or their condition/disease is due to some other underlying pathology. On the other hand, those patients who have subjective abnormalities, or who may or may not have any objective correlate for their deficits at the thresholds under the settlement, will not fall

under the compensation guidelines until they do. When they do, they can be, and will be, reconsidered for inclusion. In my opinion, this approach is reasonable and appropriate because it allows for fair compensation based upon well-accepted measurable testing/diagnostic methodology.

14. There has been discussion and criticism written by Dr. O'Shanick as to the manner in which the neurological and neuropsychological deficits will be determined. These criticisms are unwarranted, in error, and contrary to the state of the art in neurological medicine. Retired players will undergo a comprehensive neurological examination by a board-certified neurologist. This is not a trivial endeavor. This evaluation is comprehensive and detailed and will include components including constitutional evaluation, mental status testing, speech testing, full cranial nerve investigation, motor function, sensory function, coordinative testing, reflex testing, back and neck evaluation, and gait and posture. The interview and examination typically require at least one hour. It is very difficult for any significant neurological abnormalities to escape such examination by an appropriately credentialed individual. The testing approach detailed in the Settlement comports with the state of the art in neurological medicine. Moreover, it is recognized under the Settlement that modalities for evaluation of the retired players should not be rigid and fixed. As new diagnostic measures, either radiographic or neuropsychological, are found to be reflective of objective neurological and neuropsychological damage, they can be incorporated into the evaluation process.

15. There has been some discussion and challenge voiced by Dr. O'Shanick of the type of practitioner opining on the ultimate deficits of the individual. This criticism seems particularly unwarranted. While many different fields of endeavor are involved

with traumatic brain injury, it is accepted nationally and internationally, that the most qualified individual is a board-certified neurologist with expertise in this field. Certainly, the evaluating neurologist may utilize consultants in other fields and the reports of other disciplines in making determinations. Such would include psychologists, psychiatrists, neuropsychologists, physiatrists, and physical/occupational/speech therapists. This is an inclusive process.

16. Similarly, retired players participating in the Baseline Assessment Program (BAP), or seeking evaluation for neurocognitive impairments independent of the BAP, will undergo neuropsychological testing by appropriately credentialed practitioners. Neuropsychological testing has been demonstrated in numerous empirical studies to accurately measure and describe cognitive and related abnormalities in patients with a wide range of neurological disorders, including persons who have sustained traumatic brain injury. Roebuck T, Moderate and severe traumatic brain injury, Ch. 21, & Mittenberg W., Mild Traumatic brain injury and postconcussion syndrome, Ch. 22, in Morgan JE, 2008, Textbook of Clinical Neuropsychology, NY.

17. In my practice of neurology, and in the diagnosis and treatment of patients with ALS, Alzheimer's disease, Parkinson's disease, and Dementia, I rely upon both my education, experience, and accepted neurological screening testing, as well as other professionals such as neuropsychologists who make use of the standard testing referenced in the Settlement test battery.

18. Certain objectors have challenged the appropriateness of the 75% reduction in compensation awards to retired players who suffer a medically confirmed stroke prior to the development of a qualifying diagnosis. In my opinion, the

presumptive offset for medically documented stroke preceeding the development of a qualifying diagnosis is scientifically sound and rationally based. As a threshold matter, there is a significant association between stroke and dementia. Sahathevan R., et al. Dementia, Stroke and Vascular Risk Factors – A Review. *Int. J. Stroke* 2012;7:61-73. Indeed, strokes are recognized as one of the most common causes of dementia. Doctors often refer to this particular type of dementia, primarily caused by strokes, as “vascular dementia.” Further, the risk factors for stroke have been independently associated with other neurologic conditions, including Alzheimer’s Disease.


19. A related contention raised is that the concussive and sub-concussive impacts at issue in this litigation by retired NFL players potentiate the risk of subsequent stroke. The medical literature regarding stroke and brain trauma, however, does not demonstrate a correlation between concussion and remote stroke risk. Indeed, I am not aware of any longitudinal or prospective study of the risk of concussions in athletes and stroke. The more general papers cited by certain experts challenging the settlement correlate moderate to severe TBI with stroke (Burke JE, et al. Traumatic Brain Injury May Be an Independent Risk Factor for Stroke. *Neurology* 2013;81:33-39), or evaluate near-term stroke risk following TBI in a relatively short period of time following the stroke (Liao C., et al. Stroke Risk and Outcomes in Patients With Traumatic Brain Injury: 2 Nationwide Studies. *Mayo Clin. Proc.* 2014;89:163-172). Upon my review of these and other publications, and based on my professional experience in treating patients who have suffered strokes, in my opinion there is no correlation between concussive and sub-concussive impacts and remote stroke risk.

20. Finally, certain objectors contend that the stroke offset is not reasonable because a particular NSAID that was allegedly administered to retired football players when they played (Toradol) increased latent stroke risk. I am not aware of any scientific support for that contention, and I have seen no such reference in any of the papers cited by the objectors. In my opinion, the offset for medically diagnosed stroke is reasonable and supported by the science.

21. Under the settlement, retired players that suffer a severe TBI before their diagnosis of a qualifying injury are subject to a presumptive reduction in their award. The severe TBIs that warrant such reductions are those suffered independent of NFL football play, during or after their time in the NFL, and are quite severe—i.e., open or closed head trauma resulting in a loss of consciousness for greater than 24 hours. *See, e.g.,* ICD-9 Codes 854.04, 854.05, 854.14, 854.15. Severe TBI been shown through studies to increase the risk of severe neurologic syndromes and conditions like those at issue compensated under the settlement. *See* Gardner R. Dementia Risk After Traumatic Brain Injury vs Nonbrain Trauma, *JAMA Neurology* 2014; Harris MA., et al. Head injuries and Parkinson's disease in a case-control study. *Occup. Env. Med.* (2013);70:839; Guo Z., et al. Head injury and the risk of AD in the MIRAGE Study. *Neurology* (2000);54:1316-1323; Deapen D. and Henderson B. A Case-Control Study of Amyotrophic Lateral Sclerosis. *Am. J. Epidemiol.* 1986;123(5):790-799. In my opinion, the connection between severe TBI and the diagnoses at issue in the settlement is scientifically sound.

I declare under penalty of perjury that the foregoing is true and correct.

Dated: November 11, 2014  
Miami, Florida

A handwritten signature in cursive script, appearing to read "Kenneth C. Fischer", written over a horizontal line.

Kenneth C. Fischer, M.D.



## **CURRICULUM VITAE**

**KENNETH C. FISCHER, M.D.**  
**1190 N.W. 95TH STREET**  
**SUITE #402**  
**MIAMI, FLORIDA 33150**



## School Of Medicine

|                                                                                              |              |
|----------------------------------------------------------------------------------------------|--------------|
| Clinical Assistant Professor Of Medicine, University of Miami School of Medicine             | 1976-1984    |
| Clinical Associate Professor, Department of Neurology University of Miami School of Medicine | 1984-1992    |
| Voluntary Faculty, Department of Neurology University of Miami School Of Medicine            | 1992-Present |

## Teaching Responsibilities

|                                                            |              |
|------------------------------------------------------------|--------------|
| Department of Neurology, Jackson Memorial Hospital         | 1975-Present |
| Special Consultant, Miami Veterans Administration Hospital | 1979-2000    |
| Neurology, American University of the Caribbean            | 2008-Present |

## Licensure

|                                                |              |
|------------------------------------------------|--------------|
| National Board of Medical Examiners            | 1971         |
| State of Florida #24675                        | October 1971 |
| New Mexico Medical Board, License# MD2006-0530 | July 2006    |

## Research Activities

1. Clinical Neurological Studies Involving Myasthenia Gravis, Neurosyphilis, Status Epilepticus, Dementia, Stroke
2. Participation in Bromocriptine Pilot Study
3. Participation in clinical study of Ticlopidine in prevention of stroke
4. Investigator, Eliprodil in treatment of acute ischemic strokes, 1995-1996
5. Participation in VNS (Vagal Nerve Stimulator) for refractory epilepsy, 1997-2003
6. Principal Miami Investigator for POINT (Platelet Oriented Inhibition in New TIA and Minor Ischemic Stroke) Study sponsored by NIH and University of Michigan

## Specialty Boards

|                                                            |      |
|------------------------------------------------------------|------|
| American Board of Psychiatry and Neurology, Diplomate      | 1978 |
| American Board Of Quality Assurance and Utilization Review | 1988 |
| American Academy of Pain Management, Credentialed          | 1992 |

**Societies**

|                                     |        |
|-------------------------------------|--------|
| American Academy of Pain Management | Fellow |
| Florida Medical Association         | Member |

**Community Activities**

|                                                           |              |
|-----------------------------------------------------------|--------------|
| Member of North Shore Medical Center Corporation          | 1981-1997    |
| Member of North Shore Medical Center Trustees             | 1985-1988    |
| Treasurer and Chief of Finance North Shore Medical Center | 1985-1988    |
| Secretary, Board of Trustees, North Shores Medical Center | 1994-1996    |
| Member Board of Trustees, North Shore Medical Center      | 1996-2001    |
| Secretary, Board of Trustees, North Shores Medical Center | 1999-2000    |
| Charter Member, North Dade Medical Foundation             | 1997-2007    |
| Grants Committee, North Dade Medical Foundation           | 2000-2007    |
| Board of Trustees, MOVERS                                 | 2005-2009    |
| Board of Trustees, Catholic Medical Services              | 2006-Present |
| Executive Committee, Catholic Medical Services            | 2007-Present |
| Chairman, Professional Affairs, Catholic Medical Services | 2007-Present |
| Director, North Shore Medical Center Stroke Program       | 2008-Present |

**Government Activities**

|                                                                                                                |              |
|----------------------------------------------------------------------------------------------------------------|--------------|
| Special Disability Examiner Neurology, Veterans Administration                                                 | 1979-2000    |
| Neurology expert, Florida Professional Review Organization                                                     | 1985-Present |
| Expert Medical Advisor, Florida Division Of Workers Compensation                                               | 1995-Present |
| Special Consultant, South Florida Evaluation and Treatment Center, Florida Department of Children and Families | 2004-Present |

**Scientific Presentations, Lectures & Program Participation-** Only National Programs Included

1. "Oral Corticosteroids in the Treatment of Ocular Myasthenia"  
Fischer, K. C. and Schwartzman, R.J. American Academy of  
Neurology, San Francisco, California April 22-27, 1974
2. "Incidence and Manifestation of Neurosyphilis in a Random Hospital  
Population". Fischer, K.C. and Schwartzman, R.J. American Academy of Neurology,  
Miami Beach, Florida. April 28-May 3, 1975
3. "Oral Corticosteroids in the Treatment of Ocular Myasthenia".  
Fischer K. C. and Schwartzman, R.J. International Myasthenia Gravis  
Foundation Conference, New York City, New York June 1975
4. "Status Epilepticus in General Hospital Population". Ginsberg, P.  
and Fischer, K.C. American Academy of Neurology, Toronto, Canada.  
April 25-30, 1976.
5. Participation in the Bromocriptine Pilot Study Program.  
Abel, M and Fischer, K.C. 1978-1981.

#### **Publications**

1. Fischer, K.C. and Wilson, W.P.: Methylphenidate and the Hyper-  
kinetic State. Diseases of the Nervous System. 32:695-699, 1971
2. Fischer, K.C. and Schwartzman, R.J.: Oral Corticosteroids in the  
Treatment of Ocular Myasthenia Gravis. Neurology. 23:795-798, 1974
3. Fischer, K.C. and Schwartzman, R.J: Oral Corticosteroids in the  
Treatment of Ocular Myasthenia Gravis. Ophthalmology Digest. April 1975
4. Fischer, K.C. and Schwartzman, R.J.: Oral Corticosteroids in the  
Treatment of Ocular Myasthenia Gravis. Annals of N.Y. Academy of  
Science. 275:652-658, 1976

#### **Hospital Medical Staff Privileges**

|                                                                              |              |
|------------------------------------------------------------------------------|--------------|
| CEDARS MEDICAL CENTER, Miami, Florida, Courtesy                              | 1976-2007    |
| UNIVERSITY OF MIAMI MEDICAL CENTER, Miami, Florida<br>Attending              | 2007-Present |
| NORTH SHORE MEDICAL CENTER, Miami, Florida<br>Attending Physician- Neurology | 1976-Present |
| JACKSON MEMORIAL HOSPITAL, Miami, Florida, Courtesy                          | 1975-Present |
| ST CATHERINE'S REHABILITATION CENTER, Miami, Florida<br>Neurology Consultant | 1996-Present |

January 2014

# Exhibit 16

**UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF PENNSYLVANIA**

|                                                                                                                                                                                                                                                                      |                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| IN RE: NATIONAL FOOTBALL LEAGUE<br>PLAYERS' CONCUSSION INJURY<br>LITIGATION                                                                                                                                                                                          | No. 2:12-md-02323-AB<br>MDL No. 2323                         |
| Kevin Turner and Shawn Wooden,<br><i>on behalf of themselves and<br/>others similarly situated,</i><br><br>Plaintiffs,<br><br>v.<br><br>National Football League and<br>NFL Properties, LLC,<br>successor-in-interest to<br>NFL Properties, Inc.,<br><br>Defendants. | Hon. Anita B. Brody<br><br>Civil Action No. 2:14-cv-00029-AB |
| THIS DOCUMENT RELATES TO:<br>ALL ACTIONS                                                                                                                                                                                                                             |                                                              |

**DECLARATION OF CHRISTOPHER C. GIZA, M.D.**

CHRISTOPHER C. GIZA, M.D., hereby declares as follows:

1. I have personal knowledge concerning the matters addressed herein, and submit this declaration in connection with Plaintiffs' motion for approval of the proposed settlement of claims in this litigation. If called as a witness, I could and would testify competently to the facts and opinions set forth in this declaration. All opinions set forth herein I hold to a reasonable degree of medical certainty.

2. I am a Medical Doctor, licensed in the State of California, and a Diplomat of the American Board of Psychiatry and Neurology. My complete curriculum vitae is attached as Tab





injury and relating these neuro-metabolic changes to both neural dysfunction and vulnerability to subsequent injury. Dr. David A. Hovda and I were the co-authors of a seminal paper on this topic in 2001, as well as the updated publication entitled the “The New Neurometabolic Cascade of Concussion”, 75 Neurosurgery, Number 4, 24-33.

7. I served as the Co-Chair of the Committee that authored the 2013 Report of the American Academy of Neurology entitled “Summary of evidence-based guideline update: Evaluation and management of concussion in sports.” These Guidelines—which have been endorsed by the National Football League Players Association, the Child Neurology Society, the National Association of Emergency Medical Services Physicians, the National Association of School Psychologists, the National Athletic Trainers Association, and the Neurocritical Care Society—constitute the Academy’s current analysis of four significant issues: (1) what factors increase/decrease concussion risk; (2) what diagnostic tools identify those with concussion and those at increased risk of severe/prolonged early impairments, neurologic catastrophe, or chronic neurobehavioral impairment; (3) what clinical factors identify those at increased risk for severe/prolonged post-concussion impairments, neurological catastrophe, recurrent concussions or chronic neurobehavioral impairment; and, (4) what interventions enhance recovery, reduce recurrent concussion risk or diminish long-term sequelae.

8. Other Professional activities pertinent to my work in the field of concussion, brain injury, and the resulting pathophysiology of concussion include: Co-director, American Academy of Neurology Sport Concussion Conference, 2014; Centers for Disease Control: Chair of Subcommittee on more severe acute impairment after pediatric mild TBI; United States Department of Defense: Operation MEND, providing TBI research and clinical care to OpMEND team and visiting military personnel; Neurologist to the Concussion Program

Committees of the NCAA and Major League Soccer; clinical consultant to the National Hockey League Players Association and the National Football League Neurological Care Program.

9. I have been an author on multiple publications involving the assessment of sports concussions and pathophysiology of concussions and TBI. I have been an invited speaker and given more than 170 lectures over the past decade regarding concussion, traumatic brain injury and the pathophysiology of injury and recovery. I have been extensively published in my field of neuroscience and brain injury, including books, book chapters, and peer reviewed journals.

10. I have reviewed the portions of the NFL Retired Players' Settlement Agreement related to the qualifying diagnoses, the injury definitions for Baseline Assessment Plan supplemental benefits and qualifying diagnoses for monetary awards (Section 6.3 and Injury Definitions section—Exhibits 1 and 2 to the Settlement Agreement), and provide the following information pertinent to the Court's understanding of the medical science relevant to this Agreement.

11. A concussion is a physiological process induced by biomechanical force that results in neurocognitive dysfunction. It is a 'brain movement injury'. The neurocognitive dysfunction commonly manifests with headaches, confusion, memory impairment, inattention, dizziness, slowed responsiveness, incoordination, nausea or vomiting, and may include sleep disturbances, visual disturbances, personality change, and changes in emotion. A concussion does not require a loss of consciousness. A concussive event can occur from a direct impact to the head or from an indirect impact causing motion of the head, resulting in translational and/or angular acceleration of the brain. There is no scientifically determined threshold of impact force or acceleration to the brain to predict or diagnose that a person has suffered a concussion. A person's susceptibility to suffer a concussion is extremely variable. Epidemiological studies

demonstrate that female athletes are more prone to concussion than male athletes. Younger athletes (high school age) appear to take longer to recover from concussions than do older (adult/college) athletes.

12. Concussion and mild traumatic brain injury are sometimes used synonymously, but there can be distinctions. Historically, the severity of TBI has been designated by Glasgow Coma Score (GCS), and a GCS of 13-15 is considered mild TBI. Thus, while concussion overlaps significantly with mTBI, an mTBI could also have a skull fracture or a small brain hemorrhage and still have a GCS of 13-15. A concussion refers to a clinical syndrome of symptoms, as outlined above, induced by biomechanical forces to the brain. This is generally accepted to occur without overt cell death or macrostructural damage to the brain. Concussion is predominantly an injury of diffuse dysfunction, without a 'hole in the brain'. Given this, concussion represents a largely recoverable diagnosis, which is borne out by multiple studies. The main concerns arise, however, in a sports-related setting, where repeated injuries may occur before full recovery, and where many participants are still in developmental stages of brain maturation. In these circumstances, there is growing evidence that the consequences of concussion may be longer lasting, permanent, or perhaps even degenerative. Following a concussion, cerebral pathophysiology can be adversely affected for days or weeks. Symptoms of concussion can include confusion, disorientation, unsteadiness, dizziness, headache and visual disturbances. These symptoms often arise without a detectable anatomic pathology and often resolve completely over time, suggesting that they are based on temporary neuronal dysfunction rather than cell death.

13. Current research confirms that a person who has suffered a concussion is at increased risk to sustain additional injury, including another concussion. Some of this risk is due

to recoverable factors, like biological vulnerability, impaired reaction time, incoordination and cognitive slowing, which may dissipate with time and healing. Persistent symptomatology after a single concussion is heavily influenced by premorbid risk factors such as migraine, learning difficulties, anxiety, and other neurobehavioral diagnoses.

14. While medical literature and clinical practice has *associated* psychological symptoms such as anxiety, depression, lability, irritability and aggression in patients with a history of concussions, this association has not led to *conclusive causation*. Many of these symptoms are common in healthy individuals and increase under stressful situations unrelated to brain trauma. It remains a challenge with an individual patient to discern whether or not these symptoms are a consequence of a head injury or associated with comorbidities (e.g., preexisting stress and social difficulties, learning disabilities, alcohol or drug abuse, etc.), secondary to dealing with the medical-legal environment or related to a combination of these factors.

15. I am aware of the published information defining CTE as a syndrome of neurobehavioral change and pathological tau deposition in the brain, reported in individuals with a prior history of sports activities, military service, and/or concussions. I am also aware that the Settlement does not provide compensation for players who are alive and claim to suffer from CTE.

16. Currently, CTE is defined as a pathological process reflecting cerebral atrophy and excessive tau protein accumulation. It has been described in a heterogeneous case series, with small sample size. It is inferred to be progressive, but no longitudinal studies have been conducted. There are no epidemiological studies that permit accurate determination of incidence, risk, or causality. The reported symptomatology and clinical presentation includes a range of cognitive dysfunctions and impairments in the various cognitive domains, including

memory impairment, executive dysfunction, impaired concentration/attention impairment, language impairment, visuospatial difficulties, and, in its more advanced form, dementia. Behavioral symptoms have similarly been described, including aggression, disinhibition, depression, suicidality, etc. A number of co-morbid neurodegenerative conditions have been described in patients observed to have CTE, including ALS, Alzheimer's disease, Parkinson's disease, and frontotemporal dementia. The current description of CTE symptomatology, however, is confounded by the retrospective nature of the data collection and the limited database used. Thus, the reported clinical observations are subject to selection bias. Since CTE is currently diagnosable only post-mortem, there are no published epidemiological, cross-sectional or prospective studies relating to CTE. Because of the lack of currently available biomarkers to observe the natural history of CTE, characterization of preclinical and prodromal CTE is premature. See Jordan BD., The Clinical spectrum of sport-related traumatic brain injury. *Nat Rev Neurol* 2013; 9:222-30.

17. There have been a few publications that represent early efforts to develop diagnostic tools to study the brains of living subjects and reach scientific or clinical conclusions regarding CTE. These studies have multiple limitations, including small sample size, no longitudinal component, and limited specificity of the diagnostic tool. It is also important to observe that varying levels of cerebral tau aggregation are found in the brain due to many conditions, such as Alzheimer's disease, frontotemporal dementia, moderate to severe traumatic brain injury, Parkinson's disease, and normal aging.

18. There is ongoing discussion in the scientific community but general agreement that our understanding of CTE is early and incomplete with regards to causality, epidemiology and clinical characterization. *See, e.g.,* Report on the Neuropathology of Chronic Traumatic

Encephalopathy Workshop, National Institutes of Health, (Dec. 5-6, 2012); *Sports Related Concussions in Youth: Improving the Science, Changing the Culture*, Institute of Medicine, (Oct. 30, 2013); McCrory P. et al., *Consensus statement on concussion in sport: the 4th International Conference on Concussion in Sport held in Zurich*, 250 BR. J. SPORTS MED. 58 (2013); and Giza C., Kutcher J., et al., *Neurol* (2013) full-length version of the “Evidence-based Guideline Update: Evaluation and Management of Concussion in Sports: Report of the Guideline Development Subcommittee of the American Academy of Neurology” available at: [http://www.neurology.org/content/suppl/2013/03/20/WNL.0b013e31828d57dd.DC1/Full-length\\_sports\\_concussion\\_guideline.pdf](http://www.neurology.org/content/suppl/2013/03/20/WNL.0b013e31828d57dd.DC1/Full-length_sports_concussion_guideline.pdf). Much work remains to identify useful, validated biomarkers that provide information about the risk factors, causes and mechanisms of CTE.

19. The current clinical and pathological descriptions of CTE are important first steps in our understanding of long term brain changes that may be associated with TBI/concussion. However, the nature of case report and case series studies precludes accurate determination of incidence, prevalence or causality. The existing published research, while important, is not yet sufficient for the scientific community to make key conclusions regarding CTE and prospective, longitudinal studies are needed. Because of these limitations any assumptions about a causal association between CTE and mild concussions or subconcussive brain injuries are premature. Similarly, any assumptions regarding symptoms that constitute the diagnostic and clinical profile of CTE also are premature.

20. Chronic neurocognitive impairment (CNI) is distinct from chronic traumatic encephalopathy (CTE). There is good evidence of measurable neurocognitive impairment (using neuropsychological testing) in professional athletes while alive. Studies in professional boxing, football, soccer, rugby and horseracing detect some degree of CNI, in most cases related to the

level of exposure to the sport. This “dose-response” implies a causal relationship. In amateur sports, however, some level of CNII is reported in about half of published studies, and not in the other half.

21. More broadly, there are certain neurologic and neurodegenerative syndromes that have been associated through epidemiological study in patients with traumatic brain injury of varying severities. These include ALS, Parkinson’s disease, Alzheimer’s disease, and dementia. See Graves A.B., 1990, The Association Between Head Trauma and Alzheimer’s Disease, *Am. J. Epidemiol.* 131:491 (statistically significant association between history of head trauma and Alzheimer’s disease); Chen H., 2007, Head Injury and Amyotrophic Lateral Sclerosis, *Am. J. Epidemiol.* 166:810-816 (three times increased risk of ALS among people suffering more than one head injury); and Harris A., 2013, Head Injuries and Parkinson’s Disease in a Case-Control Study, *Occup. Environ. Med.* 70:839-44 (statistically significant association between Parkinson’s disease and prior TBI, including concussions). Similar findings exist for dementia. Lee Y.K., 2013, Increased Risk of Dementia in Patients with Mild Traumatic Brain Injury: A Nationwide Cohort Study, *PLoS One* 8:1-7 (statistically significant three times increased risk of dementia in patients with prior reports of mTBI).

22. My statements and views included in this declaration are mine alone and do not reflect those of UCLA or any of the departments or centers with which I am associated. I have not received any financial payments for preparing this Declaration from any source, including any attorney or plaintiff in this case. I have requested that any monies paid for the work conducted in this matter be made payable to the Regents of the University of California which allows the money to be used for research and teaching activities.

I declare under penalty of perjury that the foregoing is true and correct.

Dated: November 11, 2014

Los Angeles, CA

A handwritten signature in black ink, appearing to read "Christopher G. Giza", is written over a horizontal line.

Christopher G. Giza, MD



# TAB A

## CHRISTOPHER C. GIZA, M.D

### Research/Administrative:

Room 18-218B Semel Institute Mail Code 703919  
UCLA Brain Injury Research Center  
Department of Neurosurgery  
David Geffen School of Medicine at UCLA  
Los Angeles, CA 90095  
Research: (310) 206-0588

### Clinical/Patient Related:

Room 22-474 MDCC  
Division of Pediatric Neurology  
Mattel Children's Hospital - UCLA  
David Geffen School of Medicine at UCLA  
Los Angeles, CA 90095  
Clinical: (310) 825-6196

## EDUCATION

1986 A.B. **Dartmouth College**, Hanover, NH. High honors in biochemistry.  
1990 M.D. **West Virginia University School of Medicine**, Morgantown, WV  
1990-1991 **Intern**, Department of Medicine, Hospital of the University of Pennsylvania, Philadelphia, PA  
1991-1994 **Resident**, Department of Neurology, UCLA Medical Center, Los Angeles, CA  
1994-1996 **Clinical Fellow**, Division of Pediatric Neurology, Department of Pediatrics, Mattel Children's Hospital at UCLA, Los Angeles, CA  
2008 **Clinical Trial Methods, Course in Neurology**. Sponsored by NINDS. One week intensive course of clinical trial training. Vail, CO.

## LICENSURE

California Medical License G074189, current.

## BOARD CERTIFICATION

Diplomate, American Board of Psychiatry and Neurology, certified in Neurology with Special Qualifications in Child Neurology, 1998-2008. Maintenance of certification exam passed, 3/23/2009-3/22/2019, certificate number 1133.

## PROFESSIONAL EXPERIENCE

1996-1997 **Private Practice Physician**, locum tenens. Long Beach Memorial Medical Center. Long Beach, CA  
1996-1997 **Search and Rescue Team Member**, Yosemite National Park, CA  
1997-1998 **Staff Research Assistant IV**, Neuropsychiatric Institute and Div of Pediatric Neurology, UCLA Medical Center and UCLA Children's Hospital, Los Angeles, CA  
1997-1998 **Private Practice Physician**, locum tenens. Neurologic Associates of the Valley Medical Group, West Hills, CA  
1998-2000 **Postdoctoral Fellow**, Division of Neurosurgery, Department of Surgery, UCLA Medical Center and Brain Injury Research Center, Los Angeles, CA  
2000-2001 **Assistant Researcher**, Division of Neurosurgery, Department of Surgery, UCLA Medical Center and Brain Injury Research Center, Los Angeles, CA  
2001-2007 **Assistant Professor In-Residence**, Divisions of Neurosurgery and Pediatric Neurology, David Geffen School of Medicine at UCLA, Mattel Children's Hospital at UCLA, Los Angeles, CA  
2002- **Member**, UCLA Brain Research Institute, Los Angeles, CA

|           |                                                                                                                                                                                                                                                                                                        |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2006-2007 | <b>Assistant Professor In-Residence</b> , UCLA Interdepartmental Program for Neuroscience, Los Angeles, CA                                                                                                                                                                                             |
| 2006-     | <b>Member</b> , Critical Care at Mattel Children's Hospital - UCLA Program, Los Angeles, CA                                                                                                                                                                                                            |
| 2007      | <b>Assistant Professor In-Residence</b> , UCLA Interdepartmental Program in Biomedical Engineering, Los Angeles, CA                                                                                                                                                                                    |
| 2007-2011 | <b>Associate Professor In-Residence</b> , Department of Neurosurgery; Division of Pediatric Neurology, Department of Pediatrics; Interdepartmental Programs for Neurosciences and Biomedical Engineering; David Geffen School of Medicine at UCLA & Mattel Children's Hospital - UCLA, Los Angeles, CA |
| 2011-2013 | <b>Associate Professor</b> , Division of Pediatric Neurology, Department of Pediatrics; Department of Neurosurgery; Interdepartmental Programs for Neurosciences and Biomedical Engineering; Mattel Children's Hospital - UCLA & David Geffen School of Medicine at UCLA, Los Angeles, CA              |
| 2013-     | <b>Professor</b> , Division of Pediatric Neurology, Department of Pediatrics; Department of Neurosurgery; Interdepartmental Programs for Neurosciences and Biomedical Engineering; Mattel Children's Hospital - UCLA & David Geffen School of Medicine at UCLA, Los Angeles, CA                        |
| 2014-     | <b>Director</b> , UCLA Steve Tisch BrainSPORT Program, Division of Pediatric Neurology, Department of Pediatrics; Department of Neurosurgery; Mattel Children's Hospital - UCLA & David Geffen School of Medicine at UCLA, Los Angeles, CA                                                             |

## PROFESSIONAL ACTIVITIES

**Alpha Omega Alpha Medical Honor Society**, Member 1988-present.

**American Academy of Neurology**, Member 1994-present.

- Co-chair. American Academy of Neurology Committee to author Evidence-based Guidelines for Assessment and Acute Management of Sports Concussion in Children and Adults, June 29, 2009-present.
- Member, Sports Neurology Section. November 1, 2009-present.
- Panel member, Sports Neurology Section meeting, case reviews. AAN annual meeting, Toronto, ON, Canada. April 14, 2010.
- Co-author. **Giza** CC, Kutcher J. American Academy of Neurology Sports Concussion Reference Sheets: for Coaches and Physical Education Teachers; for Clinicians; 2011.
- Panel member, Traumatic Brain Injury/Concussion brain health classes, AAN Brain Health Fair; Honolulu, HI. April 9, 2011.
- Co-organizer. American Academy of Neurology representative to the Food and Drug Administration Workshop, Assuring the Safety and Effectiveness of Seizure, Cognitive Function, and TBI/Sports Concussion Diagnostic Devices. Co-moderator of a TBI/concussion breakout session November 2010-present. Workshop held 6/2-3/11.
- Member, Spinal Cord, Nerve Root Disorders and Rehabilitation Topic Work Group (TWG). Reviews proposals and develops educational program for AAN annual meeting 2012. January-June 2011.
- Councilor, Sports Neurology Section Executive Committee, elected for term from April 2012 – April 2014.
- Topic chair, Sports Neurology Section, selected reviewers, organized abstracts and chaired sports neurology abstract session at annual meeting. August 2012-2014.
- Representative, selected as one of the official AAN representatives to President Barack Obama's White House Healthy Kids & Safe Sports Summit. May 29, 2014.
- Co-director. American Academy of Neurology Sports Concussion Conference, first-ever multidisciplinary disorder-specific medical conference sponsored by AAN. Chicago, IL. July 11-13, 2014. Registered attendees >460.
- Guest editor. Sports Neurology issue of *Continuum*. 2014.

**American Academy of Pediatrics**

- Author. **Giza CC.** It's Not Child's Play: Concussions in Youth article for the AAP Southern California Newsletter, Fall 2012.

**American Alpine Club**, Member 2002-present.

**American Board of Physical Medicine and Rehabilitation**

- Brain Injury Medicine Board Exam writer 2012-2013.

**Child Neurology Society**, Member 1994-present.

- Organizer/moderator. Session titled "Traumatic Brain Injury: Advances in Management and Emerging Treatment Options" at the Child Neurology Society 37<sup>th</sup> Annual Meeting. Santa Clara, CA. November 8, 2008.
- Organizer/moderator. Symposium titled "It's Not All Fun and Games: Understanding Sports Concussions from Pathophysiology to Clinical Care" at the Child Neurology Society 39<sup>th</sup> Annual Meeting. Providence, RI. October 16<sup>th</sup>, 2010.
- Co-organizer. Symposium titled "Saving the Brain: Opportunities in Pediatric Neurocritical Care" for the Child Neurology Society 40<sup>th</sup> Annual Meeting. Savannah, GA. October 27<sup>th</sup>, 2011.
- Co-organizer. Symposium titled "Little Brains, Big Problems: Lasting Effects of Pediatric TBI" for the Child Neurology Society 42<sup>nd</sup> Annual Meeting. Austin, TX. October 31<sup>st</sup>, 2013.
- Member, Scientific Selection & Program Planning Committee. Responsible for scientific review and selection of symposia for annual Child Neurology Society meeting. Dec. 2011-present.
- Founding Member, Traumatic Brain Injury Special Interest Group. With Heidi Blume and Howard Goodkin. First meeting, Huntington Beach, CA, November 1, 2012-present.
- Member, Research Committee. Responsible for providing research and training information to the society, and providing feedback from CNS to representatives from NIH. 2011-present.

**International Neurotrauma Society**, Member 1999-present.

- Co-chair. Session titled "Controversies in Neurotrauma: A World View". 2<sup>nd</sup> Joint Symposium of the International and National Neurotrauma Societies, Santa Barbara, CA. September 9, 2009.
- Chair, Local Scientific Advisory Committee, February 23, 2007-September 11, 2009, and
- Secretariat, October, 2008 – September 11, 2009. 2<sup>nd</sup> Joint Symposium of the International and National Neurotrauma Societies, combined with the Neurotrauma and Critical Care Section of the American Academy of Neurological Surgeons/Congress of Neurological Surgeons and the University of California (UC) Neurotrauma Society Meeting – Neurotrauma 2009, Santa Barbara, CA; September 7-11, 2009.
- Member, International Neurotrauma Society Scientific Advisory Board. September 11, 2009-2010. Committee to oversee the scientific program for the INTS meetings.

**National Neurotrauma Society**, Member 1998-present.

- Judge. Student Poster Competition. Annual National Neurotrauma Society Symposia, Biloxi, MS. November 6-7<sup>th</sup> 2003. Washington, DC. November 10-11<sup>th</sup> 2005. Las Vegas, NV, June 14, 2010.
- Abstract Reviewer. Annual National Neurotrauma Society Symposium, rated and selected abstracts for presentation, 2005, 2011.
- Mentor. Women in Neurotrauma Research (WINTR) Annual Mentoring Session at Annual National Neurotrauma Society Symposia, St. Louis, MO, July 8, 2006. Kansas City, MO, July 2, 2007. Orlando, FL, July 29, 2008. Santa Barbara, CA, September 9, 2009. Las Vegas, NV, June 15, 2010. Fort Lauderdale, 2011. Phoenix, AZ, 2012. Nashville, TN, 2013.
- Co-chair. Session titled "Pathophysiology of Pediatric Traumatic Brain Injury". 26<sup>th</sup> Annual National Neurotrauma Society Symposium, Orlando, FL. July 29, 2008.
- Chair and organizer. Session titled "Pediatric TBI". 32<sup>nd</sup> Annual National Neurotrauma Society Symposium, San Francisco, CA. June 30, 2014.

**Pediatric Neurocritical Care Research Group**, Founding member, 2008-present.

- Moderator: Session on ICU management and monitoring at the Pediatric Neurocritical Care Investigator's meeting, Chicago, IL, September 26-28, 2008.

- Founding member, Translational Biology of Disease subcommittee. March 9, 2010-present.

**Society for Neuroscience**, Member 1999-present.

**University of California Neurotrauma Society**, Founding member 1999-present.

- Co-chair and organizer. Session on Cerebral Development and Traumatic Brain Injury.  
3<sup>rd</sup> Annual UC Neurotrauma meeting, August 8<sup>th</sup>, 2002, Silverado/Napa, CA.  
4<sup>th</sup> Annual UC Neurotrauma meeting, August 21<sup>st</sup>, 2003, La Jolla, CA  
5<sup>th</sup> Annual UC Neurotrauma meeting, August 20<sup>th</sup>, 2004, Carmel, CA.  
6<sup>th</sup> Annual UC Neurotrauma meeting, August 10<sup>th</sup>, 2005, Ojai, CA.  
7<sup>th</sup> Annual UC Neurotrauma meeting, August 4<sup>th</sup>, 2006, Carmel, CA.
- Co-organizer. Organized scientific program and guest speakers for entire UC Neurotrauma meeting.  
8<sup>th</sup> Annual UC Neurotrauma meeting, September 23-25<sup>th</sup>, 2007, Santa Barbara, CA.  
9<sup>th</sup> Annual UC Neurotrauma meeting, June 23-25<sup>th</sup>, 2008. Carmel, CA.  
10<sup>th</sup> Annual UC Neurotrauma meeting, September 7-11<sup>th</sup>, 2009. Santa Barbara, CA (see INTS, above).  
11<sup>th</sup> Annual UC Neurotrauma meeting, August 22-24<sup>th</sup>, 2010. Los Gatos, CA.  
12<sup>th</sup> Annual UC Neurotrauma meeting, September 25-27<sup>th</sup>, 2011. Santa Barbara, CA.  
13<sup>th</sup> Annual UC Neurotrauma meeting, September 9-11<sup>th</sup>, 2012. Sonoma, CA.  
14<sup>th</sup> Annual UC Neurotrauma meeting, September 22-24<sup>th</sup>, 2013. Santa Barbara, CA.  
15<sup>th</sup> Annual UC Neurotrauma meeting, planned September 14-16<sup>th</sup>, 2014. Carmel, CA

**Wilderness Medical Society**, Member 2001-present.

**Ad hoc journal reviewer:** *Annals of Neurology* (2012), *Brain* (2008), *Cerebral Cortex* (2011-2), *Developmental Neuroscience* (2003, 2006, 2010), *Experimental Neurology* (2007, 2012), *JAMA* (2013, 2014), *Journal of Child Neurology* (2014), *Journal of Neurotrauma* (2006-2011, 2013), *Journal of Neurosurgery* (2007), *Journal of Cerebral Blood Flow and Metabolism* (2001), *Journal of Neurochemistry* (2007, 2010), *Neurobiology of Disease* (2005), *Neurology Research International* (2011); *Neurorehabilitation and Neural Repair* (2010), *Neurosurgery* (2007, 2008), *Pediatric Neurology* (2007-2013), *Pediatric Research* (2004), *Pediatrics* (2008-2009), *PM&R* (2010), *Psychiatric Times* (2000), *Surgical Neurology* (2004, 2007).

#### **Grant reviews:**

University of North Carolina Injury Prevention Research Center (1 proposal), 2003.

Netherlands Organization for Scientific Research (NWO), Earth and Life Sciences (ALW) Open Program, Den Haag, The Netherlands, (1 proposal) 2006.

Citizens United for Research in Epilepsy (CURE), American Institute of Biological Sciences (AIBS), US Army Medical Research and Materiel Command (USAMRMC), Department of Defense, Reston, VA, (2 proposals) 2007.

Department of Defense Concept Awards. American Institute of Biological Sciences (AIBS), US Army Medical Research and Materiel Command (USAMRMC), Reston, VA, (8 proposals) 2007.

University of Kansas Lied Endowed Basic Science Pilot Research Fund, KU Medical Center Research Institute, (2 proposals) 2008.

Program Reviewer, Department of Defense. Task Area H: Penetrating Brain Trauma & Neuroprotection Research Program, Combat Casualty Care Research Program (CCCRP), Walter Reed Army Institute of Research (WRAIR), Silver Spring, MD. February 3-4, 2009.

National Institutes of Health / National Institute of Neurological Disorders and Stroke, ZRG1 BDCN-T 58 R, Challenge Grant Panel 11. (3 proposals) June 2009.

Barrow Neurological Institute Neurology Research Grants, (4 proposals) October 21, 2009 – Jan 4, 2010.

Congressionally Directed Medical Research Program (CDMRP): Psychological Health/Traumatic Brain Injury Research Program (PH/TBIRP), Department of Defense, (8 proposals) December 13-15, 2009, Reston, VA.

UCLA Child Health Research Career Development Award, (1 proposal) November 2012.

Thrasher Research Fund (1 proposal) March 2013.

UCLA Faculty Grants Program (2 proposals) April 2013.

UCLA Children's Discovery and Innovation Institute (1 proposal) December 2013.

#### **Other completed activities**

Co-chair. Session on Mild Traumatic Brain Injury. 14<sup>th</sup> Annual Meeting of the Indian Neurotrauma Society, Kolkata (Calcutta), India. August 19<sup>th</sup>, 2005.

Panel Member, Medical Decision Making: An Interactive Session with Parents and Professionals at the 3<sup>rd</sup> Annual Pediatric Brain Injury Conference, Miller School of Medicine, University of Miami, Miami, FL. November 5<sup>th</sup>, 2005.

Panel Member, Ask the Experts Roundtable, Understanding Sports-Related Concussion: Are We Headed in the Right Direction? at the National Athletic Trainers Association annual meeting, June 29<sup>th</sup>, 2007, Anaheim, CA.

Scientific Planning Committee. 4<sup>th</sup> International Meeting on Mild Traumatic Brain Injury in Sports. San Moritz, Switzerland. March 10-15, 2008. Co-chair – session on Assessment of mild TBI and session on Pediatric Aspects of mild TBI.

Member, Traumatic Brain Injury Common Data Elements, Pediatric TBI Committee, sponsored by the National Institutes of Neurological Disorders and Stroke (NINDS/NIH), working group on Demographics and Acute Clinical Assessment, September 7, 2009 – May, 2011.

Panel Member, Discussion of future concussion research, education and advocacy. Discussion of management of concussion cases. Big Sky Athletic Training Sports Medicine Conference 2012, Big Sky, MT. January 29<sup>th</sup> and 30<sup>th</sup>, 2012.

Invited Participant, National Conference on Youth Sports Safety. Protecting Athletes and Sports Safety (PASS). Hosted by Dr. David Satcher. Washington, DC. November 7-8, 2013.

Invited Participant, Safe Sports Think Tank: Exploring the relationship between childhood sports-related concussions and long-term cognitive outcomes, sponsored by the Andrews Institute, Alzheimer's Drug Discovery Foundation and Safe Kids Worldwide. Washington, DC. November 25, 2013.

#### **Ongoing activities**

Member. Data Safety Monitoring Board, October 28, 2008-present, A Study of Intrathecal Enzyme Replacement Therapy for Spinal Cord Compression in Mucopolysaccharidosis I and An Extension Study of Intrathecal Enzyme Replacement Therapy for Spinal Cord Compression in Mucopolysaccharidosis I. Principal investigator: Patricia Dickson, MD, Los Angeles Biomedical Institute at Harbor-UCLA Medical Center.

## **COMMUNITY/UNIVERSITY SERVICE**

### **COMPLETED SERVICE**

"ICU Management of Traumatic Brain Injury" lecture for nursing staff at Northridge Hospital Medical Center, Roscoe Campus. March 24, 1999.

Symposium in Emergency Medicine Conference: "Secondary Insults following Traumatic Brain Injury" lecture to emergency room personnel and paramedics. April 18, 2001.

"What's up with Stereology?" lecture for researchers from multiple laboratories. UCLA Brain Research Institute. August 28, 2001.

"It was Just a Bump on the Head" lecture to social workers at Orange County Social Services Agency. Orange, CA. November 6, 2001.

Sagebrush Medical Clinic, Attending Physician, Pediatric Neurology. Bakersfield, Kern County, CA. 2001-2004.

Grant Reviewer, UCLA Brain Injury Research Center, University of California Neurotrauma grant program, 2003.

Reviewer, Health Tips for Parents mailing, "How do I evaluate a head injury?" Mattel Children's Hospital at UCLA, January 2004.



Member, Internet and Website Development Committee, Division of Neurosurgery, Geffen School of Medicine at UCLA, 2005-2007.

Panel Member, National Youth Leadership Program: Medicine. University of California, Los Angeles, July 23, 2009.

Reviewer/author, Health Tips for Parents mailing, "How dangerous are concussions?" Mattel Children's Hospital - UCLA, January 2011.

## CONTINUING SERVICE

Organizer, Pediatric/Developmental Brain Injury Research Group weekly meetings. Basic science meetings January, 2002-present; Clinical pediatric brain injury meetings December, 2003-present.

Advisory Board Member, American Association of Multi-Sensory Environments (AAMSE). National organization to promote awareness, access, education, research, and science for people who would benefit from Multi-Sensory Environments (MSE). November 24, 2006-present.

Commissioner, appointed by Governor Arnold Schwarzenegger and approved by California State Legislature to California State Athletic Commission, which oversees boxing and contact martial arts competitions in the state of California. June 6, 2005-June 30, 2006

Commissioner, re-appointed by Governor Arnold Schwarzenegger to California State Athletic Commission, which oversees boxing and contact martial arts competitions and the health and safety of these athletes in the state of California. May 23, 2007-present. Reappointed Jan. 2, 2011.

- Chairman, Medical Advisory Committee on Health and Safety, California Athletic Commission Program (ACP) appointed by ACP Chief Armando Garcia on August 24, 2006 and later confirmed by the California State Athletic Commission on August 6, 2007.
- Physician Liability and Malpractice subcommittee, appointed by CSAC Chair June Griffith-Collison. August 6, 2007-April 14, 2009.
- Executive Officer Search committee, appointed by CSAC Chair Tim Noonan, again by acting chair Mario Rodriguez. November, 2008-December, 2009.
- Commission recognized with the “*Commission of the Year*” Award for 2009 by the World Boxing Council, in competition with all boxing commissions worldwide.
- Doping and Drugs of Abuse subcommittee, appointed by CSAC Chair Tim Noonan. February 5, 2008-11.

- Muay Thai subcommittee, appointed by appointed by CSAC Chair Mario Rodriguez. December, 2009-11.
- Committee organizer and advisor, Medical Advisory Committee on Health and Safety, 2010-present.
- Transgender Athlete policy subcommittee, appointed by CSAC Chair John Frierson, April 2013-present.
- Neurological Evaluation subcommittee, appointed by CSAC Chair John Frierson, June 2013-present.

**Centers for Disease Control**, 2011-present

Reviewer. Head's Up! CDC Concussion education video.

Chair, Subcommittee on more severe acute impairment after pediatric mild TBI. October 2012 – present. Pediatric Mild TBI Guideline Work Group on the Acute Diagnosis and Management of Children and Adolescents with Mild TBI.

**Department of Defense**, 2009-present.

Panel Member, Blue Ribbon Symposium on Traumatic Brain Injury and Post-Traumatic Stress Disorder, Department of Defense, Uniformed Services University of Health Sciences, September 1-2, 2009, Bethesda, MD. Panel has been mandated by Vice Chiefs of Staff of U.S. Army and U.S. Marine Corps (Generals Chiarelli and Amos) to develop a protocol for mTBI and PTSD evaluation and intervention for rapid implementation in Iraq and Afghanistan.

Member, National Intrepid Center of Excellence (NICoE) Roundtable, panel convened to brainstorm ideas and priorities for the newly opened NICoE Brain Injury Center, Bethesda MD, June 25<sup>th</sup>, 2010.

Panel Member, Blue Ribbon Symposium II on Traumatic Brain Injury and Post-Traumatic Stress, Department of Defense, National Intrepid Center of Excellence, December 16-17, 2010, Bethesda, MD. Convened by Vice Chiefs of Staff of U.S. Army and U.S. Marine Corps (Generals Chiarelli and Dunsford). Reviewed implementation of protocols for mTBI developed with BRSI. Panel mandated to complete PTSD protocol, optimize mTBI protocols now in place, and to propose research investigations to better understand and treat both mTBI and PTS.

Civilian Member, Gray Team III, Joint Chiefs of Staff, Jan 8-22, 2011. Mandated by Chairman of the Joint Chiefs of Staff (Admiral Mullen). Combined civilian and military expert team sent to Afghanistan to review and advise on clinical protocols for optimal management and advanced diagnostics for TBI in theater. Visited and reviewed existing TBI programs at Bagram Air Field (BAF), Forward Operating Base (FOB) Sharana, Kandahar Air Field (KAF) and Camp Leatherneck.

Team Member, Operation MEND, David Geffen School of Medicine at UCLA, 2011-present. Provide TBI research and clinical care updates to OpMEND team and visiting military personnel. On site clinical neurological evaluations of selected OpMEND service members.

**Institute of Medicine**

- Reviewer, Evidence-based report on use of Cognitive Rehabilitation Therapy for Traumatic Brain Injury, sponsored by the Department of Defense in conjunction with the Institute of Medicine (IOM), July – August 2011.
- Presenter, AAN Evidence-Based Concussion Guidelines: Focus on Youth Concussions at the Institute of Medicine meeting, Seattle, WA. April 15<sup>th</sup>, 2013.

**Major League Soccer**, 2012-present. Selected as Neurologist to the Concussion Program Committee for professional soccer.

- MLS Combine and Medical Symposium, January 12<sup>th</sup>, 2013. January 11<sup>th</sup>, 2014. Fort Lauderdale, FL.
- MLS Concussion Program Committee meeting, July 31<sup>st</sup>, 2013. Kansas City, KS.

**National Collegiate Athletic Association**, Concussion Task Force, 2013-present. Provide recommendations for sports concussion awareness, education and management for collegiate sports.



- NCAA Concussion Task Force meeting, April 12-13<sup>th</sup>, 2013. Indianapolis, IN. Presented talks on the Pathophysiology of Concussion and Long-term Cognitive and Behavioral Sequelae of Sports Related Concussion.

#### **National Hockey League and Players' Association**

- Consultant, 2012-present. Provide clinical recommendations in selected cases requiring neurological expertise.
- Second medical opinion physician, 2013-present. Nominated to serve as an independent second medical opinion in selected cases requiring neurological expertise.

#### **National Football League Neurological Care Program**

- Selected as one of six sites nationally to provide comprehensive neurological assessment and care for retired NFL athletes.
- NFL Neurological Care Program group meeting, October 11, 2013. New York City, NY.

#### **Ontario Neurotrauma Foundation, 2013-present.**

- Member, committee to develop Canadian Pediatric mild traumatic brain injury clinical guidelines. Meeting, November 19<sup>th</sup>, 2013. Ottawa, ON.
- Zemek R, Duval S, Dematteo C, Solomon B, Keightley M, Osmond M, **Giza CC, et al.** (2014). *Guidelines for Diagnosing and Managing Pediatric Concussion*. Toronto, ON: Ontario Neurotrauma Foundation. download free at <http://onf.org/documents/guidelines-for-pediatric-concussion>.

#### **Pediatric Acquired Brain Injury Plan, 2008-present.**

Pediatric Acquired Brain Injury Plan / Sarah Jane Brain Foundation. National movement combining efforts of pediatric brain injury experts with a parent-initiated foundation to promote awareness, educate the public, prioritize research directions and establish public policy to provide resources and care for children who have experienced acquired / traumatic brain injuries.

- Advisory Board Member, October 29, 2008-present.
- Director, State Lead Center for California, Pediatric Acquired Brain Injury Plan, May 2, 2009-present.
- Executive Steering Committee Member, December 21, 2009-present.
- Panel member, Sarah Jane Brain Foundation town hall meeting, Concussion Summit, Inglewood, CA, May 6, 2011.

#### **UCLA, David Geffen School of Medicine and Mattel Children's Hospital**

Faculty Search Committees, UCLA Department of Neurosurgery, 2010; 2012.

Grand Rounds Committee, Department of Pediatrics, Mattel Children's Hospital – UCLA. October 2010-present.

Clinical Operations Committee, Operation MEND, David Geffen School of Medicine at UCLA. January 2012 – present.

Representative, selected as the official UCLA representative to President Barack Obama's White House Healthy Kids & Safe Sports Summit. May 29, 2014.

### **HONORS AND AWARDS**

|           |                                                                             |
|-----------|-----------------------------------------------------------------------------|
| 1982      | National Merit Scholar                                                      |
| 1985-1986 | Rufus Choate Scholar (top 5% in class)                                      |
| 1986      | Sigma Xi Scientific Research Society Grant-in-Aid of Research               |
| 1987      | Alpha Omega Alpha Medical Student Research Grant                            |
| 1988-     | Alpha Omega Alpha Medical Honor Society                                     |
| 1989-1990 | American Bureau for Medical Advancement in China/ Warner-Lambert Fellowship |
| 1989-1990 | Vice-President, Medical School senior class                                 |
| 1989-1990 | Herschel C. Price Educational Foundation Grant                              |
| 1996      | Mead Johnson Award for Teaching Excellence in Pediatrics                    |
| 1998-1999 | Lind Lawrence Foundation Postdoctoral Fellow                                |

1998 International Society for Cerebral Blood Flow and Metabolism, Junior Delegate Bursary Award  
 2001, 2002 University of California Neurotrauma Travel Fellowship  
 2001-2002 *Journal of Athletic Training* Clint Thompson Award 1<sup>st</sup> runner-up for Outstanding Non-Research Manuscript, "The Neurometabolic Cascade of Concussion"  
 2002-2003 American Alpine Club Research Grant Award  
 2002-2003 UCLA Brain Injury Research Center Young Investigator Award  
 2005 UCLA Council on Research Conference Travel Grant for invited lectures at the 14<sup>th</sup> Annual Conference of the Neurotrauma Society of India  
 2005 P.S. Ramani Oration Recipient at the 14<sup>th</sup> Annual Conference for the Neurotrauma Society of India  
 2007 Visiting Professor, Pepperdine University, Malibu, CA. June 19<sup>th</sup>  
 2007-2009 Shields Fellow, UCLA; supported by the Winokur Family Foundation thru the Child Neurology Foundation  
 2009 Paul R. Dyken Scholarship Lecturer at the 34<sup>th</sup> Annual Meeting of the Southern Pediatric Neurology Society  
 2010 Today's and Tomorrow's Children Fund (TTCF) Award - Grand Prize Recipient - \$175,000  
 2011 Professional in the Field Award, Brain Injury Association of California  
 2011 Honored Guest and Speaker: J. Richard Baringer Graduation Symposium at the University of Utah  
 2010-2014 Selected to Southern California Super Doctors  
 2012 Distinguished Lecturer Seminar Series, Children's Memorial Research Center, Northwestern University  
 2014 Matson Memorial Lecturer, American Association of Neurological Surgeons, Section on Pediatric Neurological Surgery  
 2014 Zackery Lystedt Angel Award, Sarah Jane Brain Foundation - in recognition of national efforts to prevent and treat pediatric traumatic brain injury and concussions.  
 2014 Invited guest, President Barack Obama's White House Healthy Kids & Safe Sports Summit. UCLA Steve Tisch BrainSPORT program selected and highlighted as a Summit Action Commitment.

## RESEARCH GRANTS, CURRENT

Reconnection of Neural Networks and Cognitive Recovery after Pediatric TBI. NINDS/NIH R01 HD061504. 5/1/10-4/30/15. Principal Investigator: RF Asarnow. Co-investigators: CC **Giza**, P Thompson. Annual direct costs requested: \$390,000. Total direct costs requested: \$1,950,000.

Blueprint for Implementing the Pediatric Traumatic Brain Injury Guidelines. NINDS/NIH R01 NS072308. 4/1/11-3/31/15. Principal Investigator: M Vavilala. Co-investigators: M Bell, CC **Giza**, M Wainwright, R Mink. No salary taken, subcontracted with Harbor-UCLA.

The National Sport Concussion Outcomes Study: Phase 1 – The Role of Equipment and Head Impact Exposure on Neurological Outcomes. National Collegiate Athletic Association (NCAA) Sport Concussion Research Study. 12/21/12-12/31/16. Co-PIs: SP Broglio, JT Eckner, CC **Giza**, KM Guskiewicz, JS Kutcher, M McCrea. Total direct costs: \$399,850 over 4 years. Total UCLA direct costs: \$55,110 over 4 years.

High Frequency Oscillation as a Biomarker in Childhood Epilepsy. NINDS/NIH R01 NS082649. 5/15/13-5/14/18. Principal Investigator: JY Wu. Investigator: CC **Giza**, JT Lerner. Annual direct costs: \$250,000.

Using glutamatergic pharmacotherapy to optimize TBI recovery. NINDS/NIH R01 NS027544-14. 7/1/13-6/30/18. Principal Investigator: DA Hovda. Co-investigators: CC **Giza**, NG Harris, ML Prins. Annual direct costs: \$218,750. Total direct costs: \$1,093,750 over 5 years.

It's Not Child's Play: Developing an Evidence-Based Approach to Youth Sports Concussions. Joseph Drown Foundation. June 15, 2013-June 14, 2014; renewed until June 14, 2015. Principal Investigator: CC **Giza**. Total direct costs: \$200,000 over 2 years.

Augmentation of Cognitive Training in Children with TBI with D-Cycloserine. NINDS/NIH R21. 2013-2015. Principal Investigator: RF Asarnow. Co-investigators: T Babikian, S Bookheimer, MS Cohen, CC **Giza**. Total direct costs: \$150,000 for 2 years.

The Ketogenic Diet for Neuroprotection after Acute Brain Injury. UCLA Children's Discovery and Innovation Institute Seed Grant. Dec 19, 2013. Principal Investigator: JH Matsumoto. Investigators: ML Prins, A Madikians, CC **Giza**. Total direct costs: \$25,000.

UCLA Program in Memory Restoration. DARPA-14-08-RAM-PA-010. 2014-2018. Principal Investigator: I Fried. Investigators: D Markovic, M Mehta, D Hovda, CC **Giza**, Bisley J, A Sayed, Vespa PM. Total direct costs requested for entire project: \$15,000,000 over 4 years.

UCLA Steve Tisch BrainSPORT Program. Private donation. Director, CC **Giza**. 5/29/14-ongoing with endowment. Research and clinical support for program designed to advance Sports concussion Prevention Outreach Research & Teaching (SPORT). Total award: \$10,000,000 over 5 years (partial endowment).

NCAA-DOD Grand Alliance: Concussion Assessment Research and Education (CARE) Consortium – Clinical Study Core (CSC). 8/1/14-7/31/18. Research Consortium Co-Chairs (T McAllister, M McCrea, S Broglio). Site PI: CC **Giza**; co-PI: J DiFiori. Annual direct costs: \$149,949. Total direct costs: \$449,848 over 3 years.

NCAA-DOD Grand Alliance: Concussion Advanced Research Core (ARC). 8/1/14-7/31/17. PI: M McCrea. Site PI: CC **Giza**, J DiFiori. Selected as one of three sites nationally for advanced prospective data collection. Annual direct costs: \$243,176. Total direct costs: \$729,528 over 3 years.

## RESEARCH GRANT APPLICATIONS SUBMITTED / PENDING

Repeat Traumatic Brain Injury. NINDS/NIH R01 NS073902-01. *Submitted 2/5/12*. Principal Investigator: MP Prins. Investigator: CC **Giza**. Annual direct costs requested: \$250,000. Total direct costs requested: \$1,250,000.

MRI and PET Premorbid Identification of Neurodegeneration in Retired Football Players. NINDS/NIH R01. *Submitted: 6/5/12*. Principal Investigator: GW Small. Investigators: J Bailes, J Barrio, S Bookheimer, CC **Giza**, DA Hovda, B Omalu. In revision.

## RESEARCH GRANTS, COMPLETED

### EXTRAMURAL

Loss of Developmental Plasticity after Head Injury. NINDS/NIH R01 NS27544, 5/1/01-4/30/04. Extension 5/1/04-4/30/05. Principal Investigator: DA Hovda. Investigators: CC **Giza**, MV Sofroniew, F Gomez-Pinilla. Annual direct costs: \$200,000. Total direct costs: \$600,000.

NMDA Receptor Dysfunction after Traumatic Brain Injury. NINDS/NIH K08 NS02197, 9/1/02-8/31/07. Principal Investigator: CC **Giza** 77%. Mentor: DA Hovda. Annual direct costs: \$162,324. Total direct costs: \$811,620.

Epileptogenicity in the Developing Brain. NINDS/NIH R01 NS046516, 2/1/04-1/31/08. Principal Investigator: R Sankar. Consultant: CC **Giza**. Annual direct costs: \$208,000. Total direct costs: \$832,000.

Metabolism of Alternative Fuels Following Developmental Traumatic Brain Injury. NINDS/NIH R01, NS052406, 6/1/05-5/31/08. No cost extension to 5/31/09. Principal Investigator: Mayumi L. Prins. Investigators: CC **Giza** 2.5%, B Bartnik, NG Harris, DA Hovda. Annual direct costs: \$175,000. Total direct costs: \$525,000.

Enhancing Recovery after Pediatric TBI: Translating Basic Neurobiology to Clinical Intervention. Supported by the Child Neurology Foundation & the Winokur Family Foundation. Shields Fellow, 8/8/07-8/7/09. Principal Investigator: CC **Giza**. Annual direct costs: \$50,000. Total direct costs: \$100,000.

Loss of Developmental Plasticity after Head Injury. NINDS/NIH R01 NS27544, 1/1/06-12/31/09. No cost extension 1/1/10-12/31/10. Principal Investigator: DA Hovda. Investigators: CC **Giza**, F Gomez-Pinilla, GS Griesbach. Annual direct costs: \$200,000. Total direct costs: \$800,000.

Mechanisms of Enhanced Fear after Diffuse Traumatic Brain Injury. Department of Defense Proposal No. DR080372. 7/1/09-12/31/10. Principal Investigator: CC **Giza**. Co-PIs: M Fanselow, D Hovda. Total direct costs: \$150,000.

Restoration of Plasticity Following Pediatric Traumatic Brain Injury. NINDS/NIH K02 NS057420, 9/1/07-8/31/10. Principal Investigator: CC **Giza** 75%. Investigators: F Gomez-Pinilla, DA Hovda, ML Prins, I Spigelman. Annual direct costs: \$163,584. Total direct costs: \$868,493.

Pathological High Frequency Oscillations as a Potential Biomarker of Post-traumatic Epilepsy. Citizens United for Research in Epilepsy (CURE) in partnership with the Department of Defense. 2010-2011. Principal Investigator: RJ Staba. Investigators: J Engel, CC **Giza**, CL Wilson. Total direct costs: \$44,221.

Long-term Outcome from Repeat Traumatic Brain Injury. NFL Charities. 2011-2012. Principal Investigator: ML Prins. Co-PI: CC **Giza**. Total direct costs: \$100,000.

Early Monitoring for Seizures and Long-term Global Outcomes Following Moderate to Severe Brain Injury in Children. Thrasher Research Foundation, 12/31/08-12/31/11. No cost extension until 12/31/12. Principal Investigator: CC **Giza**. Co-PI: Jason Lerner. Total direct costs: \$296,071.

UCLA Pediatric TBI – Sports Concussion Program. Ronald Reagan UCLA Pediatric Trauma Center - Richie's Fund. 2012-2013. Principal Investigator: CC **Giza**. Total direct costs: \$50,000.

Traumatic Brain Injury Induced Cerebral Metabolic Depression and Recovery. NINDS/NIH P01 NS058489. 5/1/09-4/30/14. Program Director: DA Hovda. Project 2: Age-dependent use of alternative cerebral substrates during TBI-induced glucose metabolic depression. Principal Investigator: ML Prins. Co-investigators: B Bartnik, CC **Giza**, N Harris. Annual direct costs: P50 - \$1,000,000; Project 2 - \$200,000. Supplemental award 2011-12: CC **Giza**, \$60,000.

#### INTRAMURAL

Glutamate Receptor Changes after Brain Trauma and Environmental Enrichment. UCLA API (Assistant Professor Initiative), 4/1/02-6/30/03. Principal Investigator: CC **Giza**. Annual direct costs: \$2,000.

Post-Traumatic Seizures in the Developing Brain. University of California Neurotrauma grant, 7/1/02-6/30/03. Principal Investigators: CC **Giza** and R Sankar. Annual direct costs: \$60,000.

Functional Brain Activation Following Pediatric Traumatic Brain Injury. UCLA FRG (Faculty Research Grants Program), 7/1/05-6/30/06. Principal investigators: CC **Giza**, RF Asarnow. Annual direct costs: \$6,000.

Acute Pathophysiological Monitoring and Long-term Functional Outcome after Pediatric Traumatic Brain Injury. UCLA Neurosurgery Seed Grant application. 11/1/06-6/30/07. Principal Investigator: CC **Giza**. Co-Principal Investigators: A Madikians, V Nenov. Annual direct costs: \$20,000.

Headache and Psychiatric Comorbidity Following Mild Pediatric Traumatic Brain Injury (TBI). UCLA FRG (Faculty Research Grants Program), 7/1/06-6/30/07. Principal Investigators: CC **Giza**, R Caplan. Annual direct costs: \$3,000.

Longitudinal Assessment of Behavioral and Biomarker Changes in a Transgenic Rat Model of Alzheimer's Disease. UCLA Alzheimer Disease Research Center (ADRC) Pilot Grant. 1/2007-1/2008. Principal Investigator: EH Teng. Co-Investigator: CC **Giza**.

Neural Network Perturbations and Cognitive Impairment Following Pediatric Traumatic Brain Injury. UCLA FRG (Faculty Research Grants Program), 7/1/07-6/30/08. Principal Investigator: CC **Giza**. Investigator: R Asarnow. Total direct costs: \$3,000.

Connecting the Dots: Mapping White Matter Connectivity after Developmental Brain Injury. UCLA FRG (Faculty Research Grants Program), 7/1/10-6/30/11. Principal investigator: CC **Giza**. Annual direct costs: \$10,000.

Prevention of Traumatic Brain Injury Induced Acceleration of Alzheimer Pathophysiology. UCLA FRG (Faculty Research Grants Program), 7/1/11-6/30/12. Principal Investigator: CC **Giza**, co-PIs: E Teng, ML Prins. Annual direct costs: \$5,000.

## INVITED LECTURES AND PRESENTATIONS (26 International in Bold)

1. "Concussion: More than a Bonk on the Head" lecture on effects of developmental traumatic brain injury for UCLA Pediatric Grand Rounds. Los Angeles, CA, January 14, 2000.
2. "Traumatic Brain Injury and Development: Reflections on Neuroplasticity" at the Inaugural University of California Neurotrauma meeting. Carmel, CA, August 2, 2000.
3. "Decreased N-Methyl D-Aspartate Receptor (NMDAR) Activity after Developmental Fluid Percussion Injury (FPI) Demonstrated by Changes in Subunit Composition" at the **5<sup>th</sup> International Neurotrauma Symposium, Garmisch-Partenkirchen, Germany**, October 2, 2000.
4. "Increased N-Methyl D-Aspartate Receptor NR2A:NR2B Subunit Ratio Induced by Rearing in an Enriched Environment" at the Society for Neuroscience Meeting. New Orleans, LA, November 8, 2000.
5. "Effects of Pediatric Concussion: Gone Today, Here Tomorrow?" at Children's Hospital of Los Angeles, CA, May 22, 2001, and University of Texas Southwestern Children's Hospital, Dallas, TX, May 23, 2001, and UCLA Mattel Children's Hospital, Los Angeles, CA, September 20, 2001; pediatric neurology departmental lectures.
6. "Mechanisms of Altered Neuroplasticity Following Developmental Concussion" at the 2<sup>nd</sup> Annual University of California Neurotrauma meeting. Ojai, CA, August 8<sup>th</sup>, 2001.
7. "Traumatic Brain Injury: A Disease of Youth" at UCLA-Olive View Medical Center Pediatric Grand Rounds. Sylmar, CA. May 15, 2002.
8. "Mechanism of Injury and the Neurometabolic Cascade of Concussion" Keynote address for National Athletic Trainers Association annual meeting. Dallas, TX. June 16, 2002.
9. "Concussion in Athletes: Contributions from Basic Science Research" at the New Developments in Sport-related Concussion conference. University of Pittsburgh Medical Center, Pittsburgh, PA. July 21, 2002.
10. "Molecular Response of the Immature Brain to Traumatic Injury" at the 3<sup>rd</sup> Annual University of California Neurotrauma meeting. Napa, CA. August 8<sup>th</sup>, 2002.
11. "Injury-induced Changes in NMDA Receptor Subunit Composition Contribute to Prolonged Calcium-45 Accumulation in Intact Cortex" at the National and International Neurotrauma Symposium, Saddlebrook, FL, October 31<sup>st</sup>, 2002.
12. "Scientific Progress Goes Boink....or Bonk" at University of Pittsburgh Medical Center Children's Hospital, Pittsburgh, PA, November 22<sup>nd</sup>, 2002; Pediatric Center for Neuroscience lecture.
13. "Cerebral Palsy: Etiology and Early Diagnosis" at the 5<sup>th</sup> Annual Margaret Jones Conference on Cerebral Palsy, UCLA/Orthopedic Hospital, Los Angeles, CA, May 17<sup>th</sup>, 2003.
14. "Physiological Impact of Sports Concussion" at the Division of Sports Medicine noon conference, 200 Medical Plaza, UCLA, Los Angeles, CA, May 21<sup>st</sup>, 2003.
15. "Update on the UCLA Developmental TBI Program" at the 4<sup>th</sup> Annual University of California Neurotrauma meeting. La Jolla, CA. August 21, 2003.
16. "Modeling Sports Concussions" at the 21<sup>st</sup> annual National Neurotrauma Society Symposium, Biloxi, MS, November 6<sup>th</sup>, 2003.
17. "I need that like I need a hole in my head... A Clinician's Guide to Traumatic Brain Injury Pathophysiology" at the Association of California Neurologists / California Association of Neurological Surgeons annual meeting, Newport Beach, CA, January 17<sup>th</sup>, 2004.
18. "Because It Is There....Head and Spine Trauma in Rockclimbing and Mountaineering" at the Division of Sports Medicine noon conference, 200 Medical Plaza, UCLA, Los Angeles, CA, January 21<sup>st</sup>, 2004.
19. "Dysfunction without Death: Developmental Brain Injury, Vulnerability and Plasticity" at the UCLA Brain Injury Research Center meeting, UCLA, Los Angeles, CA, March 3<sup>rd</sup>, 2004.
20. "Sports Concussion Pathophysiology" at the New Developments in Sport-related Concussion conference. University of Pittsburgh Medical Center, Pittsburgh, PA, July 17, 2004.
21. "A Clinician's Guide to the Basic Science of Traumatic Brain Injury" at the Pediatric Critical Care Research Conference, Mattel Children's Hospital at UCLA, Los Angeles, CA, August 25, 2004.
22. "When Does a Head Injury Become a Brain Injury?" at the Pediatric Neurosurgery Symposium: Bridging the Gap Between Clinicians and Surgeons, Los Angeles, CA, September 18, 2004.
23. "Timing of Environmental Enrichment is Critical for Recovery after Traumatic Brain Injury in the Developing Rat" at the **33<sup>rd</sup> Annual Meeting of the Child Neurology Society, Ottawa, Ontario, Canada**, October 15, 2004.
24. "Dysfunction without Death: Traumatic Brain Injury, Development, Experience and Plasticity" at the Neural Repair Group meeting, Gonda Neuroscience Building, UCLA, Los Angeles, CA, November 19, 2004.



25. "Gone Today, Here Tomorrow: Lasting Effects of Pediatric Traumatic Brain Injury" at Neuroscience Grand Rounds, David Geffen School of Medicine at UCLA, Los Angeles, CA. April 6, 2005.
26. "Because It Is There: Head Injury in the Outdoors" lecture covering basic physiology, prehospital and acute management of TBI, and climbing TBI database project, for the Yosemite Search and Rescue (YOSAR) team and the Yosemite medical clinic, Yosemite National Park, CA. June 27<sup>th</sup>, 2005.
27. "I need that like I need a hole in my head... A Clinician's Guide to Traumatic Brain Injury Pathophysiology", P. S. Ramani Oration, **14<sup>th</sup> Annual Meeting of the Indian Neurotrauma Society, Kolkata (Calcutta), India.** August 19<sup>th</sup>, 2005.
28. "Better Never Than Late: Lasting Effects of Pediatric Traumatic Brain Injury" guest lecture at the **14<sup>th</sup> Annual Meeting of the Indian Neurotrauma Society, Kolkata (Calcutta), India.** August 20<sup>th</sup>, 2005.
29. "Is Being Plastic Fantastic? Impaired Activation and Neuroplasticity Following Developmental Traumatic Brain Injury" at Neuroscience/Neurology Grand Rounds, University of Kentucky Medical School, Lexington, KY. October 20, 2005.
30. "Are the Lights on but Nobody Home? Impaired Brain Activation and the Timing of Intervention following Pediatric TBI" at the 3<sup>rd</sup> Annual Pediatric Brain Injury Conference, University of Miami, Miami Beach, FL. November 4<sup>th</sup>, 2005.
31. "Is Being Younger Better? Glutamatergic Responses to Pediatric Traumatic Brain Injury" at the Basic Science Lecture, Harbor-UCLA Medical Center, Torrance, CA. January 24, 2006.
32. "Pediatric Traumatic Brain Injury: A Silent Epidemic" at Pediatric Grand Rounds, Olive View-UCLA Medical Center, Sylmar, CA. February 8, 2006.
33. "Pediatric Traumatic Brain Injury: The Most Complex Injury to the Most Complex Organ" at Neurology Grand Rounds, Cedars-Sinai Medical Center, Los Angeles, CA. March 22, 2006.
34. "Sports Concussion: The Impact of Neural Dysfunction" Plenary Lecture at the **International Neurotrauma Symposium, Rotterdam, The Netherlands.** May 22, 2006.
35. "Fluid percussion injury and post-injury environment affect NMDA receptor subunit composition in the immature rat" platform presentation at the **International Neurotrauma Symposium, Rotterdam, The Netherlands.** May 22, 2006.
36. "Pediatric Traumatic Brain Injury Clinic: Caring for Forgotten Children" at the 7<sup>th</sup> annual University of California Neurotrauma meeting, Carmel, CA. August 4<sup>th</sup>, 2006.
37. "Glutamate: A Two-Edged Sword for Pediatric Traumatic Brain Injury" at the UCLA Brain Injury Research Center meeting, UCLA, Los Angeles, CA, October 11, 2006.
38. "Glutamate as Janus: The Two Faces of Neural Activation after Pediatric Traumatic Brain Injury" at Neurosurgery/Neuroscience Grand Rounds, UCD, Davis, CA, January 9, 2007.
39. "Understanding the Clinical Implications of Traumatic Brain Injury Pathophysiology" at Neuroscience Grand Rounds, Barrow Neurological Institute, Phoenix, AZ. February 2, 2007.
40. "Is Younger Better? Basic Mechanisms of Recovery After Pediatric Traumatic Brain Injury" at Pediatric Neurology Grand Rounds, Barrow Neurological Institute, Phoenix, AZ. February 5, 2007.
41. "Pediatric Traumatic Brain Injury: A Silent Epidemic" at **Pediatric Neurology Conference, Chulalongkorn University Hospital, Bangkok, Thailand.** April 3, 2007.
42. "Clinical Management of Traumatic Brain Injury: From Herniation to Concussion" at the **International Update in Clinical Neurosciences, Vivekananda Institute of Medical Sciences (VIMS), Kolkata, India.** April 5, 2007.
43. "Evaluation and Treatment of Pediatric Seizures" at the **International Update in Clinical Neurosciences, Vivekananda Institute of Medical Sciences (VIMS), Kolkata, India.** April 7, 2007.
44. "A Systematic Approach to Developmental Delay in Childhood" at the **International Update in Clinical Neurosciences, Vivekananda Institute of Medical Sciences (VIMS), Kolkata, India.** April 7, 2007.
45. "The Pathobiology of Concussion" at the National Concussion Summit, Sports Concussion Institute, Marina del Rey, CA. April 20, 2007.
46. "The Translational Science of Concussion" at the **World Boxing Council 2<sup>nd</sup> Medical Congress, Cancun, Mexico.** April 25, 2007.
47. "Not Enough of a Good Thing: Impaired Neural Activation after Pediatric Traumatic Brain Injury", as Visiting Professor, Pepperdine University, Malibu, CA. June 15, 2007.
48. "Pathophysiology of Concussion: On Solid Ground or Hanging by a Thread", at the National Athletic Trainer's Association Annual Meeting, Anaheim, CA. June 29, 2007.
49. "Glutamate: A Two-Edged Sword for Pediatric Traumatic Brain Injury" at Neurosurgery Grand Rounds, Dartmouth Hitchcock Medical Center, Hanover, NH, October 10<sup>th</sup>, 2007.

50. "Not Lost in Translation: Impaired Neural Activation and Recovery of Function after Pediatric Brain Injury" at the Pediatric Translational Research Group lecture, UCLA, Los Angeles, CA, October 15<sup>th</sup>, 2007.
51. "Clinical Trials in Pediatric TBI" – Discussant at the New Frontiers in Pediatric TBI meeting, San Diego, CA. November 9<sup>th</sup>, 2007.
52. "Pathobiology of Concussion: Are the Lights On But No One Home?" at the Interdisciplinary Symposium on Cervical Spine Trauma, Southern California University of Health Sciences, Whittier, CA. February 23, 2008.
53. "Because It Is There: Head Trauma in Rockclimbing and Mountaineering" at the **4<sup>th</sup> International Meeting on Mild Traumatic Brain Injury in Sports. San Moritz, Switzerland.** March 11, 2008.
54. "Found In Translation: Impaired Neural Activation and Recovery from Pediatric Brain Injury" at the **4<sup>th</sup> International Meeting on Mild Traumatic Brain Injury in Sports. San Moritz, Switzerland.** March 14, 2008.
55. "Pathobiology of Concussion: The Impact of Neural Dysfunction" at the Rendezvous II meeting; 17<sup>th</sup> Annual Meeting of the American Medical Society for Sports Medicine. Las Vegas, NV. March 25, 2008.
56. "Management of Pediatric Sports Concussions: Head bumps, Dings and Hard Knocks", at Kaiser Permanente Pediatric Morning Conference. Panorama City, CA. May 6, 2008.
57. "Heads Up! Assessment and Management of Concussions in Pediatrics" at the Clinical Issues in Pediatrics Symposium. San Francisco, CA. October 30, 2008.
58. "A Pediatrician's Primer on Seizures and Epilepsy" at the Clinical Issues in Pediatrics Symposium. San Francisco, CA. October 31, 2008.
59. "It's Not a Tumor: Headaches in Children and Adolescents" at the Clinical Issues in Pediatrics Symposium. San Francisco, CA. October 31, 2008; also given at the PRIMED Pediatrics Symposium, Anaheim, CA. May 7, 2009.
60. "Are the Lights On But Nobody Home? Impaired Neural Activation During Recovery from Pediatric TBI" at the Child Neurology Society 37<sup>th</sup> Annual Meeting. Santa Clara, CA. November 8, 2008.
61. "TBI: From Concussion to Coma" at the Association of California Neurologists Annual Meeting. San Francisco, CA. February 12, 2009. Providence Holy Cross Medical Center, Sylmar CA. October 25, 2013.
62. "Pediatric Traumatic Brain Injury: Not Just Little Adults," Paul R. Dyken Scholarship Lecturer at the Southern Pediatric Neurology Society 34<sup>th</sup> Annual Meeting. New Orleans, LA. March 21, 2009.
63. "Lost (and Found) in Translation: Imaging Impaired Neural Activation and Recovery from Pediatric Brain Injury" at the UCLA Brain Injury Research Center meeting, UCLA, Los Angeles, CA. April 22, 2009.
64. "Traumatic Brain Injury: Kids, Athletes, Soldiers – Why is it STILL the Silent Epidemic?" at the Science, Society and You lecture series, Occidental College, Los Angeles, CA. April 22, 2009.
65. "Experience-Dependent Plasticity Following Developmental TBI" at the 2<sup>nd</sup> Joint Symposium of the International and National Neurotrauma Societies, Santa Barbara, CA. September 11, 2009.
66. "Pediatric Traumatic Brain Injury: Little Brains, Big Problems" at Pediatric Grand Rounds, Mattel Children's Hospital – UCLA, Los Angeles, CA. September 18, 2009.
67. "It's Not All Fun and Games: Neural Activation and Plasticity after Pediatric Concussive TBI" at Children's National Medical Center, Eunice Shriver Intellectual and Developmental Disorders Research Center (IDDRC), Washington DC. September 24, 2009.
68. "Kids with TBI: Don't treat them just like little adults" at Neurology Grand Rounds, Cedars-Sinai Medical Center, Los Angeles, CA. January 22, 2010.
69. "Turn It On: Glutamate Agonist Therapy after Pediatric Traumatic Brain Injury" at Neuroscience/Neurology Grand Rounds, David Geffen School of Medicine at UCLA, Los Angeles, CA. February 24, 2010.
70. "Early Monitoring for Seizures and Long-term Global Outcomes Following Moderate to Severe Brain Injury in Children" at the inaugural Pediatric Neurocritical Care Research Group meeting, Snowbird, UT. March 9, 2010.
71. "You are Your Environment: Experience-Dependent Plasticity" at the Department of Laboratory and Animal Medicine monthly meeting, David Geffen School of Medicine at UCLA, Los Angeles, CA. April 28, 2010.
72. "Turn It On: Activating the Injured Pediatric Brain" at the Today's and Tomorrow's Children Fund Faculty Presentation, Department of Pediatrics, Mattel Children's Hospital – UCLA, Los Angeles, CA. May 7, 2010.
73. "Heads Up! Assessment and Management of Concussions in Pediatrics" at the PRIMED Pediatrics Symposium, Anaheim, CA. May 7, 2010.
74. "Hitting a Moving Target: Challenges and Opportunities in Recovery from Developmental Brain Injury" at the **Bo Ericsson Pediatric Neurorehabilitation Symposium, Karolinska Institute, Stockholm, Sweden.** June 12, 2010.
75. "Neurotrauma basic research and neurorehabilitation: Results from the Neurotrauma 2009 interactive survey" at the National Neurotrauma Society annual meeting, Las Vegas, NV. June 17, 2010.
76. "Hard Knocks for Jocks: Evaluation and Management of Sports Concussions" at the Texas Neurological Society Annual Summer meeting, San Antonio, TX. July 24, 2010.

77. "Found in Translation: Navigating Between Animal and Clinical Intervention Trials" at the 11<sup>th</sup> annual University of California Neurotrauma meeting, Los Gatos, CA, August 23, 2010.
78. "Not Just Little Adults: Translational Investigations of Traumatic Brain Injury in Children and Adolescents" at the University of Colorado, The Children's Hospital, Denver, CO. September 27, 2010.
79. "Plug It In and Turn It On: Connectivity and Activation in the Traumatically Injured Brain" at the Physical Medicine and Rehabilitation Grand Rounds, University of Alabama, Birmingham, AL. October 1, 2010.
80. "You are What You Experience: Effects of Environment on Neuroplasticity and Recovery from Brain Injury" at the 8<sup>th</sup> International Snoezelen Symposium, Birmingham, AL. October 2, 2010.
81. "Found in Translation: A Clinician's Guide to the Pathophysiology of Pediatric Sports Concussions" at the 39<sup>th</sup> Annual Child Neurology Society meeting, Providence, RI. October 16, 2010.
82. "Is Younger Better? Lessons in Pathophysiology for Pediatric and Adolescent Sports Concussions" at the 71<sup>st</sup> Annual Assembly of the American Academy of Physical Medicine and Rehabilitation, Seattle, WA. November 7, 2010.
83. "It Not Just All in Your Head: Understanding the Biological Basis of Concussion and mild TBI" at the 8<sup>th</sup> Annual Pediatric Brain and Spinal Cord Injury Conference at the University of Miami, Miami Beach, FL. November 9, 2010.
84. "Pathophysiology of Concussions: Hard Knocks for Jocks" at the 2011 Big Sky Athletic Training Sports Medicine Conference at Big Sky, MT. January 31, 2011.
85. "Management of Pediatric Sports Concussions: Head Bumps, Dings and Hard Knocks" at Kaiser Permanente Pediatric Morning Conference. Woodland Hills, CA. February 11, 2011.
86. "Saving the Brain After Severe Pediatric TBI: Neuroimaging, EEG and Clinical Care at the **Pediatric Neurology Neurotrauma Symposium, Alberta Children's Hospital, Calgary, AB.** February 24, 2011.
87. "What's So Mild About Mild Traumatic Brain Injury? Sports Concussions and Blast Injuries" at the **Pediatric Neurology Neurotrauma Symposium, Alberta Children's Hospital, Calgary, AB.** February 24, 2011.
88. "Plug It In and Turn It On: Imaging Brain Function, Connectivity and Restoring Plasticity After Pediatric TBI" at the **Alberta Children's Hospital Research Institute (ACHRI), Calgary, AB.** February 25, 2011.
89. "Food for Thought: Metabolism and the Concussed Brain" at the 27<sup>th</sup> Annual Sports Cardiovascular And wellness Nutrition (SCAN) Symposium, Chicago, IL. March 11, 2011.
90. "Hard Knocks for Jocks: Head Trauma in the Athlete" at the Northridge Hospital CME Noon Conference. Northridge, CA. March 15, 2011.
91. "When Does a Head Bump Become a Brain Injury: Ups and Downs of Sports Concussions in Kids" at Pediatric Grand Rounds, Olive View-UCLA Medical Center, Sylmar CA. March 23, 2011.
92. "Update on Military Mild TBI/Blast Injury: Lessons from Civilian and Military Concussions" at the American Academy of Neurology Brain Health Fair, Honolulu, HI. April 9, 2011.
93. "Neurometabolic Cascade of Concussion: Implications for Managing Youth Athletes" at the Concussion Summit, Inglewood, CA. May 6, 2011.
94. "More than just a bump on the head: From concussion to severe TBI in children and adolescents" at the Spring Symposium of the Los Angeles Council of School Nurses, Burbank, CA. May 7, 2011.
95. "Injury-Schminjury: Taking pediatric TBI seriously" at the Miller Children's Hospital Pediatric Grand Rounds, Long Beach, CA. May 13, 2011.
96. "Blast from the Future: A Civilian Look at the New Military Approach to Mild TBI in Afghanistan" at the UCLA Brain Injury Research Center meeting, Los Angeles, CA. May 25, 2011.
97. "Plug It In and Turn It On: Activating the Young Brain after Traumatic Injury" at the University of Utah J. Richard Baringer Graduation Symposium, Salt Lake City, UT. June 8, 2011.
98. "Is it Just a Bump on the Head? The latest and greatest in management of youth sports concussions" at the Kaiser Permanente Pediatric Conference. Panorama City, CA. June 21, 2011.
99. "Found in Translation: Mechanisms of Recovery following Pediatric Traumatic Brain Injury" at the **Holland-Bloorview Kids Rehabilitation Hospital Grand Rounds. Toronto, ON, Canada.** August 17, 2011.
100. "The Quest for Mechanism-Based Traumatic Brain Injury Therapies" at the inaugural **Developmental Neuroscience Grand Rounds at Alberta Children's Hospital. Calgary, AB, Canada.** Sept. 12, 2011.
101. "Gray Team III: Mild TBI in Afghanistan – A Civilian's Perspective" at the 12<sup>th</sup> annual University of California Neurotrauma meeting, Santa Barbara, CA. September 26, 2011.
102. "The Ends Justifies the Means: Outcomes and Chronic Management after Pediatric Traumatic Brain Injury / Acquired Brain Injury" at the 40<sup>th</sup> annual Child Neurology Society meeting, Savannah, GA. October 27, 2011.
103. "Show Me the Evidence: Fact and Fiction and Youth Concussions" at Pediatric Grand Rounds, Mattel Children's Hospital – UCLA, Los Angeles, CA. November 4, 2011.



104. "Head Bump or Brain Injury? Update on Youth Concussion Guidelines" at 53<sup>rd</sup> Annual Kaiser Permanente Pediatric Symposium, Long Beach, CA. November 18, 2011.
105. "Show Me the Evidence: Guidelines for the Management of Youth Concussions" at the Miller Children's Hospital Pediatric Grand Rounds, Long Beach, CA. January 27, 2011. "Show Me the Evidence: Preview of Updated Sports Concussion Management Guidelines" at the 2012 Big Sky Athletic Training Sports Medicine Conference at Big Sky, MT. January 29, 2012. "Show Me The Evidence: A Critical Approach to Sports Concussions and mild TBI" at the Pri-MED Primary Care Medicine Symposium, Anaheim, CA. April 13, 2012. "Show Me the Evidence: Clinical Approach to Concussion and Mild TBI" at the Traumatic Brain Injury Course, American Academy of Neurology Annual Meeting, New Orleans, LA. April 27, 2012. "Show Me the Evidence: Fact and Fiction and Youth Concussions" at the 5<sup>th</sup> Annual Current Trends in Pediatric and Adolescent Medicine Symposium, St. Clare's Child Neurology, Whippany, NJ. April 28, 2012.
106. "From Concussion to Coma in Pediatrics: Not Just 'Kid'-ding Around" at the Texas Neurological Society Winter meeting, Austin, TX. February 3, 2012. Also at the Providence St. Joseph Medical Center noon CME conference, Burbank, CA. May 1, 2012.
107. "Sports Related Concussions: Fact and Fiction" at the Providence Holy Cross Hospital Clinical Conference, Mission Hills, CA. February 10, 2012.
108. "Metabolism, Neural Activation and Plasticity after TBI: A Developmental Perspective" at the Keystone Symposium Clinical and Molecular Biology of the Acute and Chronic Traumatic Encephalopathies, Keystone, CO. February 27, 2012.
109. "Who Gives a Rat's....Brain? Understanding Concussion Pathophysiology and Its Relationship to Clinical Care" at the 1<sup>st</sup> Annual University of Texas Arlington Concussion Summit, Arlington, TX. March 10, 2012. "Who Gives a Rat's....Brain? How Concussion Pathophysiology Fact and Fiction relates to Clinical Care" at the Sports Medicine Concussion Program Grand Rounds, University of Pittsburgh, Pittsburgh, PA. June 7, 2012.
110. "Is Being Plastic Fantastic? The Challenges of Good and Bad Plasticity After Traumatic Brain Injury" for the Distinguished Lecturer Seminar Series at Children's Memorial Research Center, Northwestern University, Chicago, IL. April 5, 2012.
111. "It's Not All Fun and Games: Understanding Concussion Pathophysiology in Children and Adolescents" at Pediatric Grand Rounds, Feinberg School of Medicine, Northwestern University, Chicago, IL. April 6, 2012.
112. "What's Hot in Febrile Seizures: Evidence-based Clinical Assessment and Update" at the Pri-MED Primary Care Medicine Symposium, Anaheim, CA. April 13, 2012 and the California Academy of Physician Assistants annual meeting, Palm Springs, CA. October 6, 2012.
113. "Concussion Physiology Fact and Fiction: Why It Matters Which is Which" at the Sports Neurology Course, American Academy of Neurology Annual Meeting, New Orleans, LA. April 22, 2012.
114. "Traumatic Brain Injury: Pathology and Neurobiology" at the Traumatic Brain Injury Course, American Academy of Neurology Annual Meeting, New Orleans, LA. April 27, 2012.
115. "Is Being Plastic Fantastic? Traumatic Brain Injury, Environment and Development" at the **2012 International Neuropsychological Society Mid-Year meeting/11<sup>th</sup> Nordic Meeting in Neuropsychology, Oslo, Norway.** June 29, 2012.
116. "Plug It In and Turn It On: Connectivity and Activation after Pediatric TBI" at the **2012 International Neuropsychological Society Mid-Year meeting/11<sup>th</sup> Nordic Meeting in Neuropsychology, Oslo, Norway.** June 29, 2012. "Plug It In and Turn It On: Plasticity and Recovery after TBI" at Loma Linda University Medical School Neuroscience Grand Rounds, Loma Linda, CA. October 10, 2012.
117. "Neurologic Disorders" at the American Physician Institute Pediatric Board Review course, Oak Creek, IL August 6, 2012. Rosemont, IL August 26, 2013.
118. "What's Inside the Black Box of Neurology? Headaches, Seizures and Coma/Trauma" at the UCLA Pediatric Board Review Course, Santa Monica, CA. Sept. 6, 2012. Marina del Rey, CA September 7<sup>th</sup>, 2013.
119. "It's Not Just Kids' Play: Evidence-Based Concussion Management" at the North American Brain Injury Society annual meeting, Miami, FL. Sept. 12, 2012; UCLA Santa Monica Pediatric Update for the Community Practitioner, Santa Monica, CA Nov. 17, 2012. "It's Not All Fun & Games: Evidence-Based Concussion Management" at the Hawaii Neurological Society 4<sup>th</sup> Annual Scientific Conference – Trends in Neurological Medicine, Honolulu, HI. October 13, 2012.
120. "It's Not a Tumor: A Practical Approach to Headaches in Children and Young Adults" at the Providence Tarzana Medical Center Clinical Conference, Tarzana, CA. September 24, 2012. Also at the 28<sup>th</sup> annual Advances in the Practice of Pediatrics conference. San Diego, CA. Feb. 15, 2014
121. "Concussion Pathophysiology 101: Mechanisms of Neural Dysfunction and Vulnerability" at the Mayo Clinic Scottsdale Concussion Symposium, Scottsdale, AZ. September 29, 2012.

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124. "Turn It On: Controlled Neural Activation after Traumatic Brain Injury" at the **2012 National Taiwan University Medical Electronics Workshop, Taipei, Taiwan**. November 30, 2012.
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129. "Who Gives a Rat's...Brain? Translational Advances in Traumatic Brain Injury" at Neurosurgery Grand Rounds, University of California, Davis. Sacramento, CA. February 12, 2013.
130. "The Good, the Bad and the Ugly: Neuroplasticity after Pediatric Traumatic Brain Injury" at the **Neuroscience and Mental Health Mini-Symposium, Toronto Hospital for Sick Kids, Toronto, ONT**. March 1, 2013.
131. "Play with a Full Deck: Evidence-Based Guidelines for Sports Concussion Management" at the 2<sup>nd</sup> Matthew A. Gfeller Sport-Related Neurotrauma Symposium at University of North Carolina, Chapel Hill, NC. March 9, 2013.
132. "Sports Concussion Top 10: What do we know and what don't we know?" at the 2<sup>nd</sup> Matthew A. Gfeller Sport-Related Neurotrauma Symposium at University of North Carolina, Chapel Hill, NC. March 9, 2013 and the American Academy of Neurology 65<sup>th</sup> Annual Meeting Brain Health Fair – Update on Sports Concussions, San Diego, CA. March 16<sup>th</sup>, 2013.
133. "Injury-Schminjury: Taking Pediatric TBI and Concussion Seriously" at the American Academy of Neurology 65<sup>th</sup> Annual Meeting, San Diego, CA. March 18<sup>th</sup>, 2013.
134. "Who Gives a Rat's...Brain? Understanding the Links Between Concussion Pathophysiology and Clinical Care" at the American Academy of Neurology 65<sup>th</sup> Annual Meeting, San Diego, CA. March 22<sup>nd</sup>, 2013.
135. "It's Not Child's Play: An Evidence-Based Approach to Youth Concussions" at the American Medical Society for Sports Medicine Annual Meeting, San Diego, CA. April 18<sup>th</sup>, 2013. 14<sup>th</sup> Annual UC Neurotrauma meeting, Santa Barbara, CA. September 24<sup>th</sup>, 2013.
136. "It's Not All in Your Head: A Practical Approach to Pediatric Headaches" at the Pri-MED Primary Care Medicine Symposium, Anaheim, CA. May 3<sup>rd</sup>, 2013.
137. "Injury-Schminjury: Taking Pediatric Mild Traumatic Brain Injury Seriously" at the Pediatric Academic Societies Annual Meeting, Washington, DC. May 4<sup>th</sup>, 2013.
138. "Just the Facts: Evidence-Based Guidelines for Sports Concussion Management" at the National Summit on Sports Concussion, Atlanta, GA. May 10<sup>th</sup>, 2013. Neuroscience/Neurology Grand Rounds, David Geffen School of Medicine at UCLA, Los Angeles, CA. June 12<sup>th</sup>, 2013. Concussion Symposium of West Texas, El Paso, TX. August 2<sup>nd</sup>, 2013.
139. "What's Hot in Febrile Seizures" at the 40<sup>th</sup> Annual UCLA Family Medicine Refresher Course, Century City, CA. May 22<sup>nd</sup>, 2013.
140. "Future Therapies to Enhance TBI Recovery" at the 1<sup>st</sup> UCLA Pediatric TBI Symposium: Little Brains, Big Problems, Ronald Reagan-UCLA Medical Center, Westwood, CA. June 15<sup>th</sup>, 2013.
141. "Better Never Than Late: Long-term Outcomes Following Pediatric Head Trauma" CME Seminar, Northridge Hospital, Northridge, CA. June 28<sup>th</sup>, 2013.
142. "Pediatric Traumatic Brain Injury: The Not-so-Silent Epidemic" Special Seminar, Yale School of Medicine, New Haven, CT. July 15<sup>th</sup>, 2013.
143. "Who's Counting? Detection and Quantification of Head Trauma Exposure and Risk for Chronic Neurocognitive Impairment" at the Brain Trauma-Related Neurodegeneration Conference, National Institutes of Health, Bethesda, MD. July 22-23<sup>rd</sup>, 2013.
144. "The Science of Concussions" panel member and discussant at the 4<sup>th</sup> annual Santa Clara University Sports, Law & Ethics Symposium. Santa Clara, CA. September 12<sup>th</sup>, 2013.
145. "Ready for the Big Leagues: Concussion Pathophysiology in Kids and Adults" at the Advances in the Management of Concussions conference, Inova Rehabilitation Center. Springfield, VA. October 4<sup>th</sup>, 2013.
146. "I'm So Dizzy... Approach to the Dizzy Patient" at the California Academy of Physician Assistants annual meeting, Palm Springs, CA. October 5<sup>th</sup>, 2013.

147. "Measuring Post-Concussion Behavior in an Animal Model: What's that Rat Thinking?" at the Ice Hockey Summit II: Action on Concussion, Mayo Clinic, Rochester, MN. October 8<sup>th</sup>, 2013.
148. "Bench to Bedside: Neuroplasticity and Recovery after Pediatric TBI." at the **72<sup>nd</sup> Annual Japan Neurosurgical Society, Yokohama, Japan**. October 17, 2013.
149. "Fact and Fiction and Sports Concussions" at the **72<sup>nd</sup> Annual Japan Neurosurgical Society, Yokohama, Japan**. October 18, 2013.
150. "Who Gives a Rat's...Brain? Clinical Implications of Traumatic Brain Injury Pathophysiology" at the 42<sup>nd</sup> Annual meeting of the Child Neurology Society, Austin, TX. October 31<sup>st</sup>, 2013.
151. "Youth Sports Concussion Top 10: What do we know and what don't we know?" at the Safe Sports Think Tank: Exploring the relationship between childhood sports-related concussions and long-term cognitive outcomes, Washington, DC. November 25, 2013.
152. "Monitoring the Injured Brain: From Coma to Sports Concussions" at the **Symposium on Engineering, Medicine and Biology (SEMBA), Taipei, Taiwan**. January 19<sup>th</sup>, 2014.
153. Chair and Discussant, Panel Discussion – "Sense and Sensibility: Now, Then and the Future of Brain Science and Engineering" at the **Symposium on Engineering, Medicine and Biology (SEMBA), Taipei, Taiwan**. January 19<sup>th</sup>, 2014.
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155. "Pediatric Concussions: A Primary Care Approach" at the 28<sup>th</sup> annual Advances in the Practice of Pediatrics conference. San Diego, CA. February 14, 2014.
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157. "Pediatric Traumatic Brain Injury: Clinical Pearls from Coma to Clinic" at the 28<sup>th</sup> annual Advances in the Practice of Pediatrics conference. San Diego, CA. February 16, 2014.
158. "Basic Science Breakthroughs from Sports Concussion Research" at the 10<sup>th</sup> World Congress on Brain Injury. San Francisco, CA. March 19, 2014.
159. "Enhancing Recovery after Pediatric TBI: Translating Basic Neurobiology to Clinical Intervention" at the 3<sup>rd</sup> annual Current Topics in Sports Medicine Symposium – Concussion 2014: The Essentials. Scottsdale, AZ. March 22, 2014.
160. "Sports Brain Injuries: An Evidence Based Approach to Concussion" at the 63<sup>rd</sup> annual Yosemite Postgraduate Institute, Fresno-Madera Medical Society meeting. Yosemite, CA. March 29, 2014.
161. "Concussion Workshop: Mild TBI/Concussion Cases" at the 63<sup>rd</sup> annual Yosemite Postgraduate Institute, Fresno-Madera Medical Society meeting. Yosemite, CA. March 29, 2014.
162. "Just the Facts: An Evidence Based Approach to the Youth Concussion Crisis" as the Matson Memorial Lecture at the 82<sup>nd</sup> American Association of Neurological Surgeons Annual Scientific meeting. San Francisco, CA. April 9, 2014.
163. "Use Your Head: What you need to know about youth concussions from basic pathophysiology to clinical management" lecture and workshop at the California Psychological Association annual convention. With Dr. Talin Babikian. Monterey, CA. April 10, 2014.
164. "Pediatric Sports Concussion Management: Practice and Research Perspectives" at the 2<sup>nd</sup> annual Sports Neuropsychology Society Concussion Symposium. Dallas, TX. April 26, 2014.
165. "Who Gives a Rat's...Brain? Why Should You Care About Concussion Pathophysiology" at the American Academy of Neurology 66<sup>th</sup> Annual Meeting, Philadelphia, PA. April 30<sup>th</sup>, 2014.
166. "Cutting Edge Concepts in Traumatic Brain Injury" at the 2<sup>nd</sup> annual Central California Trauma Symposium, Fresno, CA. May 7<sup>th</sup>, 2014.
167. "Even Obama Cares: Identification and Management of Youth Concussions" at the Pediatric Neurology Clinical Neuroscience Conference, University of Pennsylvania and Children's Hospital of Philadelphia, Philadelphia, PA. June 19<sup>th</sup>, 2014.
168. "Found in Translation: Developmental Plasticity as a Therapeutic Target after Pediatric TBI" at the National Neurotrauma Society 32<sup>nd</sup> Annual Symposium, San Francisco, CA. June 30, 2014.
169. "Concussion Pathophysiology 101 at the 1<sup>st</sup> American Academy of Neurology Sports Concussion Conference, Chicago, IL. July 11-13, 2014.

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99. Lerner JT, Arndt DH, Matsumoto J, Madikians A, Yudovin S, Valino H, McArthur DL, Wu JY, Leung M, Szeliga C, van Hirtum-Das M, Brooks-Kayal A, Sankar R and **Giza** CC. Post-traumatic seizures in children with traumatic brain injury admitted to the pediatric ICU: A role for continuous EEG monitoring. *Annals Neurol* 2012 72 (suppl 16): S214. E31.
100. Matsumoto JH, Caplan R, Mc Arthur D, Forgey M and **Giza** CC. Nonepileptic events following traumatic brain injury: comparison of two pediatric cohorts. *Annals Neurol* 2012 72 (suppl 16): S211. E20.
101. Su M, Mc Arthur D, Lerner JT, Arndt D, Matsumoto J, Valino H, Yudovin S, Leung M and **Giza** CC. Timing Matters: Early Post-Traumatic Seizures in a Pediatric Population. *American Academy of Neurology annual meeting*, 2013.
102. Choe M, Mc Arthur D, Yudovin S, Fischer J and **Giza** CC. Risk Factors for Post-Concussive Headaches after Sport-Related TBI in a Pediatric Subspecialty Clinic Population. *Neurology*, 2013. 78(S1):P01179. Selected for Data Blitz presentation.
103. Hartonian I, Babikian T, Yudovin S, Valino HB, Fischer J and **Giza** CC. Sport-related concussion in youth: Impact on behavioral functioning. *American Academy of Neurology annual meeting*, 2013. Selected for Data Blitz presentation.
104. Abend NS, Arndt D, Carpenter JL, Chapman KE, Gallentine WB, **Giza** CC, Goldstein JL, Hahn CD, Lerner JT, Loddenkemper T, Matsumoto JH, McBain K, Nash NB, Payne E, Sanchez SM, Sanchez-Fernandez I, Shults J, Williams K, Yang A, Dlugos DJ, Pediatric Critical Care EEG Group and the Critical Care EEG Monitoring Consortium. Electrographic seizures in critically ill children. *American Clinical Neurophysiology Society annual meeting*, 2013.
105. Reid A, Bragin A, **Giza** CC, Staba R. Seeking seizures: Analysis of depth electrode-recorded EEG in experimental post-traumatic epilepsy. *Epilepsia*, 2013. 54(S1):44.
106. Biswas C, **Giza** CC, Cai Y, Hovda DA. A longitudinal evaluation of working memory deficits due to mild and moderate fluid percussion injury using quantified novel object recognition. *J Neurotrauma*, 2013. 30(15):A25-6.
107. Choe M, Mc Arthur D, Yudovin S, Fischer J and **Giza** CC. Risk factors for development of headache after traumatic brain injury in a pediatric subspecialty clinic population. *Child Neurology Society meeting*, 2013.
108. Chapman KE, Abend NS, Arndt DH, Carpenter JL, Cornett KM, Dlugos DJ, Gallentine WB, **Giza** CC, Hahn CD, Lerner JT, Loddenkemper T, Matsumoto JH, McBain K, Nash KH, Payne E, Sanchez Fernandez I, Sanchez SM, Williams K, Goldstein JL. Periodic and rhythmic patterns during EEG monitoring of critically ill children. *American Epilepsy Society meeting*, 2013.
109. Abend NS, Arndt D, Carpenter JL, Chapman KE, Cornett K, Dlugos D, Gallentine WB, **Giza** CC, Goldstein J, Hahn C, Lerner JT, Matsumoto JH, McBain K, Nash KH, Payne E, Sanchez-Fernandez I, Sanchez S, Williams K, Loddenkemper T. Electrographic seizures after convulsive status epilepticus in children. A retrospective multicenter study. *American Epilepsy Society meeting*, 2013.
110. Reid A, Bragin A, Engel J, Staba R, **Giza** CC. Age at traumatic brain injury affects excitability and seizure susceptibility. *American Epilepsy Society meeting*, 2013.
111. Goldstein J, Abend NS, Arndt D, Carpenter JL, Cornett K, Dlugos DJ, Gallentine WB, **Giza** CC, Hahn CD, Lerner JT, Loddenkemper T, Matsumoto JH, McBain K, Nash NH, Payne E, Sanchez-Fernandez I, Sanchez S, Williams K, Chapman KE. Named coma patterns during EEG monitoring of critically ill children. *American Epilepsy Society meeting*, 2013.
112. Fischer J, Choe M, Yudovin S, McArthur D, Asarnow R, **Giza** C, Babikian T. Impact of traumatic brain injury on real-world measures of school performance in a pediatric TBI clinic population. *National Academy of Neuropsychology annual meeting*, 2013.
113. **Giza** CC, Prins ML, Choe MC, Fischer J, Kutcher JS, Hovda DA. Fact and Fiction and Sports Concussions. *Japan Neurosurgical Society annual meeting*, 2013.
114. **Giza** CC, Santa Maria NS, Buen F, Reger ML, Gurkoff GG, Harris NG, Babikian T, Cazalis F, DeBoard Marion S, Asarnow RF and Hovda DA. Bench to Bedside: Neuroplasticity and Recovery after Pediatric TBI. *Japan Neurosurgical Society annual meeting*, 2013.
115. **Giza** CC. Monitoring the Injured Brain: From Coma to Sports Concussions. *Symposium on Engineering, Medicine and Biology Applications (SEMBA)*, 2014.

116. Vavilala MS, Kernic MA, Wang J, Kannan N, Mink RB, Wainwright MS, Groner JI, Bell MJ, **Giza** CC, Zatzick DF, Ellenbogen RG, Boyle LN, Mitchell PH, Rivara FP. Acute care clinical indicators associated with discharge outcomes in children with severe TBI. *J Neurotrauma* 2014, 31:A-20, abstract A1-10.
117. Brolliar SM, Vavilala MS, Whiteside LK, Thompson JH, Mink RB, Wainwright MS, Groner JI, Bell MJ, **Giza** CC, Zatzick DF, Ellenbogen RG, Boyle LN, Mitchell PH, Rivara FP. Factors associated with clinician adherence to pediatric TBI guidelines: A qualitative study. *J Neurotrauma* 2014, 31:A-21, abstract A1-13.
118. Biswas C, Hokyhkyan V, Karkare VP, Segal A, **Giza** CC, Markovic D, Cai Y, Hovda DA. Electrophysiological Signatures of Juvenile Mild TBI during Novel Object Recognition. *J Neurotrauma*, 2014, 31:A-64, abstract B4-16.
119. Choe MC, Fischer J, Zeiger M, Yudovin S, **Giza** CC. Postural Orthostatic Tachycardia Syndrome after mild TBI. *J Neurotrauma*, 2014, 31:A-70, abstract B4-31.
120. Dennis EL, Jin Y, Villalon-Reina JE, Kernan CL, Mink RB, Babikian T, **Giza** CC, Asarnow RF, Thompson PM. Longitudinal Tract-Based Analysis of Callosal Disruption in Moderate/Severe Pediatric TBI. *J Neurotrauma*, 2014, 31:A-69, abstract B4-28.
121. Kannan N, Wang J, Mink RB, Wainwright MS, Groner JI, Bell MJ, **Giza** CC, Zatzick DF, Ellenbogen RG, Boyle LN, Mitchell PH, Rivara FP. Hypotension patterns and vasopressor choice after severe TBI across 5 pediatric trauma centers. *J Neurotrauma*, 2014, 31:A-69, abstract B4-30.
122. Segal A, Biswas C, Cai Y, **Giza** CC, Hovda DA. Examining D-cycloserine administration protocols in developing rats following LFPI and reducing variability in pCaMKII levels. *J Neurotrauma* 2014, 31:A-62, abstract B4-10.
123. Zeiger M, Fischer J, Choe M, McArthur D, Yudovin S, **Giza** C. Longitudinal Recovery of Reaction Time in Acute and Chronic Concussion Patients. *J Neurotrauma* 2014, 31:A-49, abstract B1-16.
124. Furukawa D, **Giza** CC. Sleep disturbance in sports-related concussion in children. *J Neurotrauma*, 2014, 31:A-61, abstract B4-06.
125. The National Sports Concussion Outcomes Study (**NSCOS**) Consortium. Effect of a Single Season of Sport Participation on Clinical Neurological Outcomes: A Comparison of Non-Contact, Contact, and Collision Sport Athletes. *Accepted, AAN Sports Concussion Conference, 2014.*
126. Ng A, Choe M, Yudovin S, Fischer J, McArthur DL, **Giza** CC. Unusual (and not-so-unusual) sequelae of pediatric traumatic brain injury. *Accepted, Child Neurology Society, 2014.*
127. Choe MC, Yudovin S, Fischer J, Zeiger M, **Giza** CC. Complicated mild: redefining severity in traumatic brain injury. *Accepted, Child Neurology Society, 2014.*
128. Rajaraman RR, Lerner JT, Arndt DH, McArthur D, Fischer J, Zeiger M, Choe M, **Giza** CC. Predictive model for early post-traumatic seizures in the PICU. *Submitted, American Epilepsy Society, 2014.*

## **BOOKS**

1. Donnelly TJ and **Giza** CC. Differential Diagnosis Mnemonics. Philadelphia, PA. Hanley and Belfus, Inc., 2001.
2. Bhidayashiri R, Waters M and **Giza** CC. Neurological Differential Diagnosis: A Prioritized Approach. Malden, Massachusetts. Blackwell Publishing, 2005.
3. **Giza** CC. Section Editor, Central Nervous System Trauma. In International Neurology: A Clinical Approach. Lisak RP, Truong DD, Carroll W, Bhidayasiri R, eds. Wiley-Blackwell Publishing, 2009.

## **TEACHING**

### **Housestaff**

Neurosurgery housestaff mentored (with dates mentored and current positions - 5):

- Igor Fineman, M.D. 1998-2000; Neurosurgical residency completed at UCLA in 2000; current position – Attending Physician, Neurosurgeon, Huntington Memorial Hospital with appointment at California Institute of Technology.
- T. J. Spinks, M.D. 2002-2005, Neurosurgical residency completed at UCLA in 2005; current position – Assistant Clinical Professor, University of Pittsburgh Medical Center, Pittsburgh, PA.
- Garni Barkhoudarian, M.D. 2007-2011; Neurosurgical residency completed at UCLA in 2011. Completed skull base fellowship at Brigham and Women's Hospital, Boston, MA 2012. Current position – Attending physician, St. John's Hospital, Santa Monica, CA.
- Jason Hauptman, M.D. 2008-2010 Ph.D. 2011, currently in residency training at UCLA.
- Recipient of *NIH/UCLA Mental Retardation Research Center Predoctoral Fellowship*, 2009-2010.

Llewellyn Padayachy, M.D. 2009-2010. MMed 2010. University of Cape Town, South Africa. External Examiner for MMed dissertation.

Neurosurgery Resident Research Committee, Division of Neurosurgery, UCLA School of Medicine, 2003-present.

#### Neurosurgery didactic teaching

Neurosurgery Basic Science lecture, "A Resident's Guide to Developmental Physiology and Developmental Brain Injury". Neurosurgery Teaching Day, UCLA Division of Neurosurgery. January 19, 2005.

Neurosurgery Basic Science lecture, "Is Being Plastic Fantastic? Mechanisms for Post-Injury Plasticity and Recovery in the Developing Nervous System." Neurosurgery Teaching Day, UCLA Division of Neurosurgery. February 21, 2007.

Neurosurgery Basic Science lecture, "Found in Translation: Modulating Neural Activation After TBI from the Bench to the Clinic (and Back)." UCLA Division of Neurosurgery. April 16, 2008.

Neurosurgery Basic Science lecture, "Neurotransmission, Excitotoxicity and Plasticity: Is Being Plastic Fantastic?" UCLA Department of Neurosurgery. March 21, 2012.

#### Pediatric Neurology housestaff mentored (with dates mentored and current positions - 18):

Rinat Jonas, M.D.; 2001-2004; Pediatric neurology fellowship completed at UCLA in 2002; current position – Assistant Professor, Director of Long-term EEG Monitoring, Boston University School of Medicine, Boston, MA.

Gabrielle Glasser M.D.; 2002-2004; Pediatric neurology fellowship completed at UCLA in 2004; current position – Attending Physician, Kaiser Permanente, Woodland Hills, CA.

Pantea Sharifi, M.D.; 2003-2005; Pediatric neurology fellowship completed at UCLA in 2005; current position – Clinical Assistant Professor, Division of Pediatric Neurology, Mattel Children's Hospital at UCLA and Attending Physician, private practice, Palos Verdes, CA.

Peter F. Morrison, M.D.; 2004-2006, Pediatric neurology fellowship completed at UCLA in 2006; Epilepsy Fellow, Johns Hopkins University, Baltimore, MD 2007-2008; current position – Attending Physician, private practice, Maine Neurology, Scarborough, ME.

Jeff Ekstrand, M.D., Ph.D.; 2005-2007, Pediatric neurology fellowship completed at UCLA in 2007; current position – Assistant Professor, University of Utah, Salt Lake City, UT.

Sarah Copeland, M.D., Ph.D.; 2005-2007, Pediatric neurology fellowship completed at UCLA in 2007; Neurotrauma postdoctoral fellowship completed at UCLA in 2008; Clinical Instructor, UCLA Department of Neurosurgery and Division of Pediatric Neurology, Los Angeles, CA 2008-2009; current position – Attending physician, Santa Clara County Hospital.

Daniel Arndt, M.D.; 2003-2008, Pediatric neurology fellowship completed at UCLA in 2008; current position – Attending physician, Beaumont Children's Hospital, Royal Oak, MI.

- Recipient of *National EpiFellows Foundation Research Grant*, 2009-2010.

Melissa Przeklasa, M.D.; 2008-2010, Pediatric neurology fellowship completed at UCLA in 2010; current position – Attending physician, private practice, Laguna Beach, CA.

Meeryo Choe, M.D.; 2007-ongoing, Pediatric neurology fellowship completed at UCLA in 2012; current position - Neurotrauma postdoctoral fellowship at UCLA 2012-2014. See post-doctoral fellow, below.

- Recipient of the *Morris A. Hazan Friends of the Semel Institute Fellowship*, 2012-2013.

Shaun Hussain, M.D., M.P.H.; 2007-2011, Pediatric neurology fellowship completed at UCLA in 2010; Pediatric epilepsy fellowship at UCLA completed in 2011; current position – Assistant Professor, UCLA Pediatric neurology.

Lekha Rao, M.D.; 2009-2011, Pediatric neurology fellowship completed at UCLA in 2011; current position – Clinical instructor at UCLA.

Nicole Cobo, M.D.; 2009-2012, Pediatric neurology fellowship completed at UCLA in 2012; current position – Pediatric epilepsy fellowship at UCLA.

Daniel Shrey, M.D.; 2008-2013, Pediatric neurology fellowship completed at UCLA in 2013; current position – Pediatric epilepsy fellowship at UCI.

Ivet Hartonian, M.D.; 2009-2013, Pediatric neurology fellowship completed at UCLA in 2013; current position – pediatric neurologist, California Children's Services.

Tammy Yuen, M.D.; 2012-ongoing, in fellowship at UCLA

Rujuta Bhatt, M.D.; 2011-ongoing, in fellowship at UCLA

Farah Villanueva, M.D.; 2012-ongoing, Completed residency at Loma Linda, in fellowship at Harbor-UCLA.

Rajsekar Rajaraman, M.D.; 2013-ongoing, in fellowship at UCLA.



Pediatric housestaff mentored (with dates mentored and current positions - 7):

Jerry Cheng, M.D., 2001-2002; Pediatrics residency completed at UCLA in 2003.

Brent Gordon, M.D.; 2001-2003; Pediatrics residency completed at UCLA in 2004; completed pediatric cardiology fellowship at UCLA 2007.

Myke Drayer-Federman, M.D. 2004-2007; Pediatric critical care fellowship completed at UCLA in 2007; current position – Assistant Professor of Pediatric Critical Care, UCLA, Los Angeles, CA.

Yu-Tsun Cheng, M.D. 2007-2008; completed pediatrics residency at UCLA in 2008; completed sports medicine fellowship at Kaiser Permanente, Los Angeles 2009.

Jeremy Moore, M.D. 2007-2008; completed pediatric cardiology fellowship at UCLA 2008.

Michelle Schober, M.D. 2009-ongoing; began mentoring as junior faculty at University of Utah in 2009. Served as extramural mentor for TBI on K12; current position – Associate Professor of Pediatric Critical Care Medicine, University of Utah School of Medicine.

Delee Har, M.D. 2010-2012, completed pediatric critical care fellowship at Harbor-UCLA 2012; current position – Attending physician, Children's Hospital of Orange County.

Neurology housestaff mentored (with dates mentored, honors and current positions - 9):

Michael Waters, M.D., Ph.D.; 2002-2004; Neurology residency completed, UCLA, 2004; Neurogenetics fellowship, Cedars-Sinai Medical Center, 2004-2006; current position - Assistant Professor and Director, Stroke Program, University of Florida.

Richard Bhidayasiri, M.D.; 2002-2004; completed residency at UCLA 2004; completed movement disorders fellowship, UCLA, 2004-2006; current position – Associate Professor of Neurology, Chulalongkorn Comprehensive Movement Disorders Centre Chulalongkorn University Hospital Bangkok and Visiting Professor (Movement Disorders), UCLA Department of Neurology, Los Angeles, CA.

Sarah Kremen, M.D.; 2006, UCLA Department of Neurology, Los Angeles, CA.

Edmond Teng, M.D., Ph.D.; 2007-present, UCLA Department of Neurology, Los Angeles, CA. current position – Visiting Assistant Professor of Neurology, UCLA.

- Recipient of *UCLA Alzheimer Disease Research Center (ADRC) Pilot Grant*, 2007-2008.
- Recipient of *NIH/NINDS K08 award*, 2009-2014.
- Recipient of *Paul B. Beeson Career Development in Aging award*, 2009-2011.

Navaz Karanjia, M.D. 2007-2008. UCLA Department of Neurology. Los Angeles, CA. Neurocritical Care Fellow, Johns Hopkins 2008-2010. Current position – Director, Neurocritical Care, Department of Neurosurgery – University of California, San Diego.

Michael Su, M.D. 2011-2013. UCLA Department of Neurology, Los Angeles, CA.

Korak Sarkar, M.D. 2012-2013. Kerlan Jobe Sports Clinic, Cedars-Sinai Neuro ICU, Los Angeles, CA. Neurotrauma Fellow. Current position – Brain Injury Fellow, Chicago, IL.

Ryan Martin, M.D. 2013-present. UCLA Department of Neurology, Los Angeles, CA. Current position – Chief Resident.

Amaal Starling, M.D. 2013-2014. Headache Fellow, Mayo Clinic Scottsdale. Visiting fellow at UCLA, Los Angeles, CA.

## Pediatric and Pediatric Neurology clinical teaching

Pediatric Neurology outpatient clinic, UCLA Medical Center. Supervised and instructed pediatric and neurology residents. August 2001-present.

Pediatric Neurology inpatient and consultation service, UCLA Mattel Children's Hospital. Supervised and instructed pediatric and neurology residents and pediatric neurology fellows. September 2001-present.

## General Pediatrics, Critical Care and Pediatric Neurology didactic teaching

Pediatric Morning Report, UCLA Mattel Children's Hospital. Provided neurological perspective to pediatric housestaff clinical case presentations. September 2001-2004.

Pediatric Housestaff Noon Conference, clinical lectures to pediatric interns and residents, Mattel Children's Hospital - UCLA

- “Management of Pediatric Traumatic Brain Injury”. February 20, 2002; February 6, 2004.
- “Sports-related Head Injuries in Children and Young Adults”. March 12, 2003.
- “Cerebral Palsy: Diagnosis, Etiology and Management”. May 18, 2005.
- “Evidence-Based Guidelines for the Management of Severe Pediatric Traumatic Brain Injury”. September 6, 2005.

- “Management of Mild Pediatric Traumatic Brain Injury: Head bumps and Sports concussions”. May 8, 2006.
  - “Pediatric Traumatic Brain Injury: Management and Follow-up”. January 5, 2007; September 10, 2007.
  - “Management of Pediatric Neurological Emergencies” clinical lecture to PGY2 residents. July 17, 2002; July 7, 2003; July 7, 2004; July 2, 2008.
  - “Pediatric Sports Concussions.” April 19, 2010.
  - “Play with a Full Deck: Evidence-Based Guidelines for Sports Concussion Management.” March 11<sup>th</sup>, 2013.
- Department of Pediatrics Journal Club. Presented basic science articles relevant to pediatrics. “Nature vs. Nurture: Determinants of Cognitive Development” October 24, 2002.
- Neurology Teaching Conference, lectures to adult neurology residents, David Geffen School of Medicine at UCLA.
- “Sports-related Traumatic Brain Injury” clinical lecture to adult neurology residents and faculty. November 13, 2002.
  - “Traumatic Brain Injury: From Concussion to Coma” lecture to neurology residents. May 11, 2011.
  - “Mild TBI: Concussion” summer stock lecture to neurology residents. August 10, 2011.
  - “Who Gives a Rat’s...Brain?” lecture to neurology residents. June 20, 2012.
- Pediatric Neurology Noon Conference, subspecialty lecture to pediatric neurology medical students, residents, fellows, faculty and staff, Mattel Children’s Hospital - UCLA.
- “A Clinician’s Guide to Traumatic Brain Injury Pathophysiology (with special attention to kids and development). January 29, 2004.
  - “Pediatric Traumatic Brain Injury Update: New Horizons in 2005.” April 21, 2005.
  - “Glutamate: A Two-Edged Sword for Pediatric Traumatic Brain Injury.” March 29<sup>th</sup>, 2007.
  - “The Pathobiology of Concussion”, April 19<sup>th</sup>, 2007.
  - “Management of Pediatric Sports Concussions: Head bumps, dings and hard knocks,” May 9, 2008.
  - “Surfing the Neural Network: Recovery of Connectivity after Pediatric TBI and Developing a Translational Model,” October 3, 2008.
  - “Imaging Brain Function and Restoring Plasticity after Pediatric TBI,” April 10, 2009.
  - “Because It Is There: Head Injuries in Rockclimbing and Mountaineering,” May 1<sup>st</sup>, 2009.
  - “Everything You Ever Wanted to Know about Concussions...and Then Some”, September 3, 2010.
  - “Severe Pediatric TBI: Acute Care Beyond the Guidelines”, October 29, 2010.
  - “Blast from the Future: A Civilian Look at the New Military Approach to Mild TBI in Afghanistan”, April 22, 2011.
  - “Mild TBI: Cases in Sports Concussion”, September 23, 2011.
  - Journal Club: Randomized controlled trial of amantadine for TBI, Giacino et al., NEJM 2012. March 16, 2012.
  - “Hard Hitting Sports Concussion Guidelines: How they will impact the field”. September 21, 2012.
- Pediatric Critical Care Fellows Conference, subspecialty lecture to pediatric critical care residents, fellows and faculty. Mattel Children’s Hospital at UCLA.
- “Pediatric Traumatic Brain Injury: Management and Research at the UCLA Brain Injury Research Center”, July 20<sup>th</sup>, 2007.
  - “Beyond the Guidelines: Advanced Acute Management of Pediatric TBI”, August 13<sup>th</sup>, 2009.
  - Journal Club: A Trial of ICP monitoring in TBI, Chesnut et al., NEJM 2012. January 8, 2013.

## Nurses

### Level 1 Pediatric Neurology Class

- “Just the Facts: Evidence-Based Guidelines for Youth Sports Concussion Management”, October 21<sup>st</sup>, 2013.

## Medical Students

Medical Students mentored (with dates, degrees obtained and current positions - 9):

Luigi diStefano, summer 2003; M.D. Washington University School of Medicine, 2006; Emergency Medicine residency, Stanford University 2006-10.

Julia Breault, 2006-2007; M.D. Ross University School of Medicine, Dominica, 2011.

Mary Anne Baquing, fall 2008-2011; M.D. David Geffen School of Medicine at UCLA, 2012. Current position – Obstetrics & Gynecology residency, Harbor-UCLA, Torrance, CA, 2012-2015.

Floyd Buen, fall 2010-2011; current position – MS3 University of California, San Diego School of Medicine. 2010-2015.

- Recipient, *Howard Hughes Medical Research Fellowship*, 2012-2013.

Nina Azer, winter-spring 2011; current position – MS3 Ross University School of Medicine, Dominica; 2010-2014.

Andrew Ng, summer 2011, winter 2013-2014; current position – MS4 University of Vermont Medical School; 2010-2014.

David Chang, summer 2012; current position – MS2, Chicago Medical School; 2011-2015.

Daisuke Furukawa, fall 2012-present; current position – MS3, David Geffen School of Medicine at UCLA; 2011-2015.

Kyla Sherwood, winter 2013-present; current position – MS1, David Geffen School of Medicine at UCLA; 2013-2017.

#### Medical student didactic teaching

Medical Student Core lecture “The Many Faces of Pediatric Neurology”: November 26, 2003; March 9, 2005; March 8, 2006; September 20, 2006; October 31, 2007; May 4, 2009, November 4, 2009; September 1, 2010.

#### **Graduate/Postgraduate**

##### Postdoctoral fellows mentored (with dates mentored, honors and current positions - 10):

Takeshi Maeda, M.D., Ph.D.; 1999-2001; current position – Assistant Professor, Departments of Neurosurgery and Dentistry, Nihon University, Tokyo, Japan

Elisa Roncati-Zanier, M.D.; 2001-2002; current position – Director of Unit of Cell Therapy and Acute Brain Injury, Department of Inflammation and Nervous System Disease, Mario Negri Institute, Milano, Italy

Qingxia Li, M.D., Ph.D.; 2003-2006, completed UCLA postdoctoral fellowship 2006.

Fabienne Cazalis, Ph.D.; 2004-2008, completed UCLA postdoctoral fellowship 2008; last known position – Assistant Professor, Department of Neuroscience, Ross University School of Medicine, Dominica, and Staff Research Assistant (consultant), UCLA Department of Psychiatry and Biobehavioral Sciences.

- Recipient of *BRI/Semel Institute Neuroscience Postdoctoral Fellow Award* to attend the Society for Neuroscience annual meeting, 2007.

Talin Babikian, Ph.D; 2005-2010, current position – Assistant Research Professor, UCLA Department of Psychiatry and Biobehavioral Sciences, Los Angeles, CA.

- Recipient of *NIH/NINDS National Research Service Award for the project: Neuroimaging and Recovery after Pediatric Traumatic Brain Injury*, F32 NS053169. Funding period 2006-2008 (2 years).
- Recipient of the UCLA Brain Injury Research Center Young Investigator Award 2007-2008.
- Recipient of *Student Travel Scholarship* to attend National Neurotrauma Society meeting, 2009.

Sarah Copeland, M.D., Ph.D; 2007-2009, completed Neurotrauma postdoctoral fellowship 2008; Clinical Instructor, UCLA Department of Neurosurgery and Division of Pediatric Neurology, Los Angeles, CA 2008-2009. Attending physician, Santa Clara County Hospital, Santa Clara, CA, 8/2009-present.

Andrew Poulos, Ph.D.; 2008-2013, current position – Assistant Professor, University at Albany, SUNY, Albany, NY.

Tiffany Greco, Ph.D.; 2011-ongoing, current position – Postgraduate Researcher, UCLA Department of Neurosurgery, Los Angeles, CA.

Aylin Reid, M.D., Ph.D.; 2012-ongoing, current position – Postgraduate Researcher and Epilepsy Fellow, UCLA Department of Neurology, Los Angeles, CA.

- Recipient of *Alberta Innovates Health Solutions* fellowship, 2012-2013.

Meeryo Choe, M.D.; 2012-ongoing; current position - Neurotrauma postdoctoral fellowship at UCLA 2012-2014.

Clinical Instructor, UCLA Division of Pediatric Neurology, 2013-present.

- Recipient of the *Morris A. Hazan Friends of the Semel Institute Fellowship*, 2012-2013.
- Recipient of *NARSAD Young Investigator Grant* from the *Brain and Behavior Research Foundation*, 2013-2015.
- Recipient of the *Drown Foundation Friends Fellowship* 2014.
- Recipient of *Student Travel Scholarship* to attend National Neurotrauma Society meeting, 2014.

##### Graduate student thesis committee member (with dates, honors and degrees obtained and current positions - 10):

Cheri Osteen, 2000-2002; Ph.D. in Neuroscience, UCLA 2002; current position – Medical Writer, Amgen, Inc. Thousand Oaks, CA.

Shoshanna Vaynman, 2003-2005; Ph.D. in Physiological Sciences, UCLA 2005; completed postdoctoral fellowship, Department of Physiological Sciences, UCLA, with Dr. Fernando Gomez-Pinilla.

Gene Gurkoff, 2002-2006; Ph.D. in Neuroscience, UCLA 2006; Dissertation: “The Effect of Chemically-Induced Status Epilepticus on the Post-Traumatic Brain: A Characterization of Secondary Injury in the Immature Rat.” Current position – Assistant Professor-In Residence, Department of Neurosurgery, University of California, Davis, 2013.

- Recipient of *National Neurotrauma Society Al Faden Award* for a top 5 student abstract, National Neurotrauma Society meeting, 2005.

Robert Lemoyne, 2008-2010; Ph.D. in Biomedical Engineering, UCLA 2009. Dissertation: "Wireless Quantified Reflex Device."

Maxine Reger, 2005-2011, Ph.D. in Experimental Psychology, UCLA 2011. Dissertation: "Enhanced Fear Learning Following Mild Traumatic Brain Injury in the Rat."

- Recipient of *Student Travel Scholarship* to attend the New Frontiers in Pediatric Traumatic Brain Injury meeting, 2007.
- Recipient of *Student Travel Scholarship* to attend National Neurotrauma Society meeting, 2008.
- Selected for the *Student Research Competition* (top 16 student abstracts) at the National Neurotrauma Society meeting, 2009; 2010.
- Current position – Postdoctoral Fellow, NIAAA. Bethesda, MD.

Naomi Santa Maria, 2006-2012, Ph.D. in Biomedical Engineering, NeuroEngineering Training Program, UCLA 2012.

**Committee chair.**

- Selected for the *Student Research Competition* (top 16 student abstracts) at the National Neurotrauma Society meeting, 2008; 2010.
- Recipient of *Student Travel Scholarship* to attend National Neurotrauma Society meeting, 2009.
- Current position – Postdoctoral Fellow, California Institute of Technology. Pasadena, CA.

Chaitali Biswas, 2011-ongoing; currently in 4<sup>th</sup> year of Ph.D. in Biomedical Engineering, UCLA.

Daya Alexander, 2010-ongoing; currently in 4<sup>th</sup> year of Ph.D. in Neuroscience, UCLA.

- Selected for the *Student Research Competition* (top 16 student abstracts) at the National Neurotrauma Society meeting, 2011, 2014.

Derek Verley, 2009-ongoing; currently in 5<sup>th</sup> year of Ph.D. in Neuroscience, UCLA.

Andrew Segal, 2013-present; currently in 2<sup>nd</sup> year of Ph.D. in Neuroscience, UCLA.

Graduate students supervised/mentored (with dates, honors and degrees obtained and current positions – 7):

Andrew Hufford, 1998-2000; M.S. UCLA 2000; last known position – Attorney, Salt Lake City

Emily Ip, 2000-2003; Ph.D. in Neuroscience, UCLA 2003; current position – Senior Research Associate, Anacor Pharmaceuticals, Palo Alto, CA

Che Hutson, 2005-2008; Ph.D. in Neuroscience, UCLA 2009; last known position – Postdoctoral Fellow, Boston MA

- Selected for the *Student Research Competition* (top 16 student abstracts) at the National Neurotrauma Society meeting, 2007.
- Recipient of *BRI/Semel Institute Neuroscience Postdoctoral Fellow Award* to attend the Society for Neuroscience annual meeting, 2007.

Gretchen Miller, 2006-2011; Ph.D. in Neuroscience, UCLA. Current position – Postdoctoral Fellow, Cedars-Sinai Medical Center. Dissertation: "Endogenous Stem and Progenitor Cell Responses of the Subventricular Zone and Cortex Following Traumatic Brain Injury."

- Selected for the *Student Research Competition* (top 16 student abstracts) at the National Neurotrauma Society meeting, 2009.

David Johnston, 2007-2009; Ph.D. in Neuroscience, UCLA.

Kim Hathaway, 2007; Neuroscience, UCLA.

Hannah Valino, 2010-2012; M.P.H. UCLA 2011. Current position – MS1, University of California, Davis School of Medicine, 2013.

Special graduate student mentoring (4):

Ashley DiBattista, 2008; York University, M.S. 2008. Pediatric Neuropsychology, University of Melbourne, Australia Ph.D. 2013 Was a visiting graduate student as part of special award listed below.

- Recipient of the *Women in Neurotrauma VISA Award* for a foreign graduate student to attend the National Neurotrauma Society annual meeting and then visit the institution and mentor of their choice for a 2 week rotation, 2008.

Margaretha Helen Clausen, 2011, Ph.D. in Neuropsychology. University of Melbourne, Australia. External Examiner for Ph.D. Dissertation titled "Acute Neurocognitive Impairment in Professional Boxing."

Megan Morrison, 2011-2012, M.F.A. candidate Carnegie-Mellon University. Served as scientific advisor and proofreader for a screenplay submitted to the Alfred P. Sloan Foundation Screenwriting Competition.

Francesca Pischiutta, 2012-2013, Ph.D. candidate. Visiting graduate student as part of special award.



- Recipient of the *Women in Neurotrauma VISA Award* for a foreign graduate student to attend the National Neurotrauma Society annual meeting and then visit the institution and mentor of their choice for a 2 week rotation, 2012.

#### Graduate student didactic teaching

Psychology 298: Brain Injury and Recovery of Function. "Is a Younger Brain a Better Brain?" lecture on effects of age-at-injury for UCLA graduate course, May 16, 2000.

Physiological Science 241: Substrates for Neural Repair. "Injury to the Developing Brain" lecture for UCLA graduate course. February 20 and 27, 2002; February 19, 2003.

Physiological Science 241: Substrates for Neural Repair. "Pathophysiology of Traumatic Brain Injury" lecture for UCLA graduate course. February 26, 2003.

Physiological Science 241: Substrates for Neural Repair. "Is a Younger Brain a Better Brain?" lecture for UCLA graduate course. February 25 and March 3, 2004; February 7, 2005.

Physiological Science 241: Substrates for Neural Repair. "Glutamate and Development: Good or Bad?" lecture for UCLA graduate course. February 6, 2006.

NeuroEngineering Journal Club. Brainstorming session: Development of technologies for real-time chemical sensing in the injured brain. February 1, 2007.

Psychology Journal Club: Fear conditioning following Traumatic Brain Injury, presented by Maxine Reger. February 7, 2007.

Physiological Science 241: Substrates for Neural Repair. "Is Being Plastic Fantastic? Mechanisms of Altered Plasticity Following Developmental Traumatic Brain Injury." lecture for UCLA graduate course. February 21, 2007; February 20, 2008.

Neuroscience 210C: Journal Reading and Scientific Review, Spring 2008. 10 week course teaching critical reading of scientific articles and studies. Wide ranging topics, from historical papers to clinical research to issues in scientific/biomedical ethics (16 students).

#### **Undergraduate/Postbaccalaureate (27)**

##### Undergraduate students mentored (with dates, honors and degrees obtained and current positions):

Brian Nahed, 1998-2000; B.S. UCLA 2000; M.D. Yale University, 2005; Neurosurgery residency, Massachusetts General Hospital 2005-2011.

Angela Echiverri, 1999-2000; B.S. UCLA 2000; M.P.H. Johns Hopkins University 2005; M.D. UCSF 2012.

Alana Lozada, 1999-2001; lab technician; B.S.N. UCSD 2006; M.S. nursing, UCSD 2008.

Niloofar Farmani, 2000-2001; B.S. UCLA 2001; M.D. St. George's University School of Medicine, Grenada, 2006; Pediatrics residency, New York City, 2007-2010.

Tad Kremen, 1999-2001; B.S. UCSB 1999; lab technician UCLA 1999-2002; M.D. UCLA 2006; Orthopedic Surgery residency, UCLA 2006-2012.

Jenny Hoffman, 2000-2002; B.S. UCLA 2002; M.D. UCSD 2007.

Naomi Santa Maria, 2002-2006; B.A. University of Pennsylvania 2005; Ph.D. in Biomedical (Neuro) Engineering, UCLA 2012; see graduate student, above.

Maxine Reger, 2003-2005; B.A. Cal State Fullerton 2003; Volunteer Lab Assistant, UCLA Neurotrauma Lab 2003-2005; Ph.D. in Psychology, UCLA, 2011; see graduate student above.

Jane So-youn Lee, 2004-2005; B.S. UCLA 2005; M.D. UCI 2010.

- Recipient of *UCLA Undergraduate Research Scholarship* 2004-2005 for undergraduate thesis work

Michaelann Ferraro, Summer 2005; B.A. Georgetown University 2007.

Julia Breault, 2005-2007; B.S. UC Berkeley; M.D. Ross University School of Medicine, Dominica 2011.

Mary Anne Baquing, 2005-2008, B.S. in Psychobiology at UCLA 2007; Lab Assistant, UCLA Neurotrauma Lab 2007-8; M.D. David Geffen School of Medicine at UCLA 2012. Current position – Resident in Obstetrics/Gynecology, Harbor-UCLA Medical Center, 2012-2016.

- Recipient of *UCLA Undergraduate Research Fellows Program (URFP) Scholarship* for research work, winter-spring 2007.

Nick Covard, 2007; B.S. UCLA 2007; Marine Biology researcher.

Farrah Vali, 2007-2008, B.S. UCLA 2009.

David Garfinkel, 2007-2010, B.S. Psychobiology UCLA 2009, Lab Assistant, UCLA Neurotrauma Lab (with Dr. Grace Griesbach), 2009-2010.

- Recipient of *Educational Employees Credit Union (EECU) Educational Grant*, 2009.

Hannah Valino, 2007-2012, B.S. Psychobiology UCLA, 2009; Assistant Community Health Organizer, UCLA Brain Injury Research Center 2009-2010; MPH UCLA 2010-11. Accepted UCD School of Medicine 2013.

David Okikawa, 2008-2010, B.S. Neuroscience UCLA 2010, last known position - Instructor in JET program, teaching English in Japan 2011-2013.

- Recipient of *Outstanding Poster Award* (top 5 out of 75 posters) at the 11<sup>th</sup> Annual Neuroscience Undergraduate Poster Session.

Aditya Ponnaluri, 2008-ongoing, B.E. Biomedical Engineering UCLA 2011, M.E. Masters in Biomedical Engineering, UCLA 2012.

- Recipient of *UCLA Undergraduate Research Fellows Program (URFP) Scholarship* for research work, winter-spring 2011.

Floyd Buen, 2009-2012, current position – Medical Student, University of California, San Diego, 2010-2015.

- *Howard Hughes Medical Student Research Fellow*, 2012-2013.

Kathleen Xu, 2009-2011, B.S. Psychobiology at UCLA 2011.

Farbod Fazlollahi, 2010-2012, B.S. Neuroscience UCLA 2010; last known position - Research Assistant, UCLA metabolomic laboratory.

Phoebe Hua, 2010-2013, B.S. Psychobiology UCLA 2013, last known position – applying for medical school.

Divya Siddarth, 2011-2013, last known position - high school student.

Jesse Fischer, 2012-ongoing, B.S. Psychology Occidental 2012, UCLA Pediatric TBI – Sports Concussion Program coordinator 2012-2014; current position – Ph.D. candidate, Baylor University Neuropsychology Program.

Max Zieger, 2013-ongoing, B.S. Neuroscience UMICH 2013, UCLA Pediatric TBI – Sports Concussion Program research volunteer 2013-2014; current position – Research Coordinator, UCLA Pediatric TBI – Sports Concussion Program. UCLA Steve Tisch BrainSPORT program.

Lauren Fraund, 2014-ongoing, currently UCLA undergraduate.

Camille Ramirez, 2014-ongoing, B.S. UCSB 2013, current position – research volunteer, UCLA Pediatric TBI – Sports Concussion Program.

#### Undergraduate research teaching

Student Research Project 99: Winter 2000-present. Supervised and mentored undergraduate students in basic science research (12 students – Nahed, Echiverri, Farmani, Hoffman, Lee, Baquing, Vali, Garfinkel, Ponnaluri, Okikawa, Hua, Fraund).

Independent Research 199: Winter 2000-present. Supervised and mentored undergraduate students in independent basic science research and writing of a thesis (7 students – Farmani, Lee, Baquing, Garfinkel, Okikawa, Ponnaluri, Hua).

#### Undergraduate didactic teaching

Physiological Science 144: Neural Control of Physiological Systems. “A Nauseous Nocturne: Sleep and Dreaming” lecture on sleep physiology for combined UCLA undergraduate and graduate course. November 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2011, 2012, 2013; October 2010.

Psychology 372: Biological Psychology. “Acquired Brain Injury - Trauma, Seizures, Stroke, Tumors: How the Brain is Hurt” undergraduate lecture. Pepperdine University, Malibu, CA. October 2004, 2005, 2009, 2010, 2013; November 2006, 2007, 2008, 2011; February 2008, 2009, 2011; March 2012, 2014.

# Exhibit 17



**UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF PENNSYLVANIA**

|                                                                                                                                                                                                                                                                      |                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| IN RE: NATIONAL FOOTBALL LEAGUE<br>PLAYERS' CONCUSSION INJURY<br>LITIGATION                                                                                                                                                                                          | No. 2:12-md-02323-AB<br>MDL No. 2323                         |
| Kevin Turner and Shawn Wooden,<br><i>on behalf of themselves and<br/>others similarly situated,</i><br><br>Plaintiffs,<br><br>v.<br><br>National Football League and<br>NFL Properties, LLC,<br>successor-in-interest to<br>NFL Properties, Inc.,<br><br>Defendants. | Hon. Anita B. Brody<br><br>Civil Action No. 2:14-cv-00029-AB |
| THIS DOCUMENT RELATES TO:<br>ALL ACTIONS                                                                                                                                                                                                                             |                                                              |

**DECLARATION OF DAVID ALLEN HOVDA, PhD.**

DAVID ALLEN HOVDA, PhD., hereby declares as follows:

1. I have personal knowledge concerning the matters addressed herein, and submit this declaration in connection with Plaintiffs' motion for approval of the proposed settlement of claims in this litigation. If called as a witness, I could and would testify competently to the facts and opinions expressed herein. All of the opinions expressed in this declaration I hold to a reasonable degree of scientific certainty.

2. I currently serve as a Professor in the Departments of Neurosurgery and Molecular and Medical Pharmacology at the David Geffen School of Medicine at UCLA, Los Angeles, California. I also currently serve as the Vice Chair of Academic Affairs, in

the Department of Neurosurgery at the David Geffen School of Medicine at UCLA. My complete curriculum vitae is attached as Tab A. I highlight below some of my experience, research, and qualifications relevant to the opinions expressed herein.

3. I have multiple degrees in Psychobiology and a postdoctoral degree in Neurophysiology. I am the Director of the UCLA Brain Injury Research Center and have served in that capacity since 1992. Over the course of my tenure as Director of the BIRC, I have managed a \$5 million per year budget, overseeing traumatic brain injury research from as many as 25 faculty from 8 different departments throughout the University. During my tenure, I have launched the University of California Neurotrauma Research Program that actively funds research proposals from all University of California campuses. In my capacity as Vice Chair of Academic Affairs Department, I am responsible for overseeing all academic personnel matters for the Department of Neurosurgery. This includes, but not limited to, the supervision of dossier preparation, writing letters of review for candidates, and advising the Chairman regarding matters associated with the University of California Academic Personnel guidelines and procedures.

4. As Director of the UCLA Brain Injury Research Center, I oversee research training for graduate and post-graduate students. I also help in the construction of grant applications, review manuscripts prior to submission for publication and coordinating the general neuroscientific education of the faculty and residents associated with the UCLA Brain Injury Research Center.

5. I have served as the Chair of the National Institutes of Health Study Section NSD-A (2001-2003), Brain Injury and Neurovascular Pathologies (2005-2008)

and Multi-Drug Combinations to Promote Neurological Recovery in Traumatic Brain Injury (2009) for NINDS. I have held numerous positions in National and International Societies, including serving as President of the National (2008-2009 and 2009-2011) and International (2009-2011) Neurotrauma Societies.

6. I have held numerous positions on National and International Committees, including the following positions: Defense and Veterans Brain Injury Center: Member, Scientific Advisory Board International Scientific Advisory Board – Uppsala University, Uppsala, Sweden Brain and Spinal Injury Center: Scientific Advisor, ICP 2007 Brain Injury Association of California, Board of Directors Department of Defense, Defense Health Board, Traumatic Brain Injury: External Advisory Subcommittee Department of Defense Post-Traumatic Stress Disorder and Traumatic Brain Injury Clinical Consortium (INTRuST): Scientific Advisory Board Brain Injury Association of America Board of Directors Department of Defense, Defense Health Board University of Maryland External Advisory Committee Department of Defense, U.S. Army Medical Research and Materiel Command, Combat Casualty Care Research Program, Neurotrauma Steering Committee National Academy of Neuropsychology Foundation, Board of Trustees Cohen Veterans Center, Advisory Board Pediatric Neurocritical Care Research Group

7. I serve as a member of the Editorial Board of several brain-injury related organizations and act as a peer publication reviewer for dozens of journals, including the Journal of Neuroscience, Neurology, Journal of Neuroscience Research, Brain, Journal of Neurosurgery, and the New England Journal of Medicine.

8. I have served in the past and continue to serve as a Consultant and Advisor to many organizations, including the National Football League (1998-1999), the World

Boxing Council, the New Jersey Commission on Brain Injury Research, the Medical Advisory Board, Sports Legacy Institute, and the U.S. Department of Defense, TBI/PTSD Advisory Panel, 2009 to the present.

9. Current pertinent research grants include: “UCLA Program in Memory Restoration”, Dept. of Defense, “TBI-Induced Cerebral Metabolic Depression and Recovery”, NIH, and “Using glutamatergic pharmacotherapy to optimize TBI recovery”, NIH.

10. I have been an invited lecturer or speaker at hundreds of professional meetings involving a host of topics related to brain injury. Some of the more recent and relevant topics include: “Updates and Advances in the Neuroscience of Concussion”, Sports Psychology Society Meeting and Symposium, 2013; “The Neurometabolic Cascade of Traumatic Brain Injury”, American Association of Neuropathologists, 2013; “Mild TBI and Mental Health”, US Secretary of Defense Symposium on Traumatic Brain Injury, The Pentagon, 2013; “Metabolic Management of Brain Injury”, University of Texas Southwestern Medical Center, 2014; and, “The Neurochemical and Neurometabolic Cascade of TBI and its Effect on Long Term Outcome”, Casa Colina Centers for Rehabilitation, 2014.

11. I have published at this date 175 peer reviewed papers and many of them relate to research and clinical work regarding brain injury and the physical and developmental outcome, including the neurophysiology of concussion and the physical and psychological outcome from chronic traumatic brain injury.

12. Throughout my career, I have taught medical students and physicians and psychologists through courses and training sessions in the areas of anatomy,

neuroanatomy, psychobiology, neurophysiology, neuroimaging, neuroscience, neurosurgery, histology, behavioral analysis, statistical analysis, and electrophysiology. I have been involved in the training of neurosurgical residents and others. Many of the topics I have taught relate to my professional work regarding brain injury, concussion, TBI, and the resulting physical and psychological issues associated with long-term outcome for patients with TBI.

13. My statements and views included in this declaration are mine alone and do not reflect those of UCLA or any of the departments or centers with which I am associated. I have not received any financial payments for preparing this Declaration from any source, including any attorney or plaintiff in this case. I have requested that any monies paid for the work conducted in this matter be made payable to the Regents of the University of California which allows the money to be used for research and teaching activities.

14. A concussion is an active physiological process induced by biomechanical forces that result in brain dysfunction. It is a 'brain movement injury'. This dysfunction commonly manifests with headaches, confusion, memory impairment, dizziness, slowed responsiveness, incoordination, and personality change. A concussion does not require a loss of consciousness. A concussive event can occur from a direct impact to the head or from an indirect impact causing motion of the head, resulting in translational and/or angular acceleration of the brain.

15. Upon concussion (or mild traumatic brain injury) there is a massive flux of ions that is related to a discharge of neurons resulting in the release of the excitatory amino acid glutamate. This produces an energy crisis in the brain and results in

depolarization, which is responsible for the neurological deficits experienced.

16. There is no scientifically determined threshold of impact force or acceleration to the brain to predict or diagnose that a person has suffered a concussion. A person's susceptibility to suffer a concussion is extremely variable. Epidemiological studies demonstrate that female athletes are more prone to concussion than male athletes. Younger athletes (high school age) appear to take longer to recover from concussions than do older (adult/college) athletes.

17. Following a concussion, cerebral physiology can be adversely affected for days or weeks. Symptoms of concussion can include confusion, disorientation, unsteadiness, dizziness, headache, and visual disturbances. These symptoms often arise without a detectable anatomic pathology and often resolve completely over time, suggesting that they are based on temporary neuronal dysfunction rather than cell death. However, some individuals (approximately 15-20%) have reported to experience post-concussive symptoms for extended period of time with women being more sensitive than men. The reason for these individual differences is as yet unclear.

18. Current research confirms that a person who has suffered a concussion is at increased risk to sustain additional injury, including another concussion. Some of this risk is due to recoverable factors, like biological vulnerability, impaired reaction time, in coordination, and cognitive slowing, which may dissipate with time and healing. Some of the risk for recurrent concussion may be independent of concussion care, for example, genetic vulnerabilities. Lastly, some risks for repeat concussion are bio-behavioral, that is, aggressive styles of play or poor playing style—these would not get better on their own, but could conceivably improve if identified and minimized through proper coaching

and training. Those who have sustained multiple concussions are also more likely to require longer to recover, providing a second rationale to the mantra “when in doubt, sit it out”. By identifying concussions early and removing players from contact risk, the likelihood of second concussions or other injuries can be reduced.

19. Current research and mainstream medical literature confirm that a person who has suffered a moderate to severe level of traumatic brain injury may have an increased propensity for later-in-life cognitive slowing and an increased risk for early onset Alzheimer’s disease and/or dementia, Parkinson’s disease, and ALS. Mortimer et al., 1991; Bower et al., 2003; Lehman, Hein et al., 2012. Repeat concussions that occur close in time can result in a moderate or severe level of injury (second impact syndrome). However, it must be noted that although concussion is a mild traumatic brain injury, brain movement that does not reach a level that would induce a concussion (sometimes referred to as a sub-concussive event), has yet to be defined in terms of neuroscientific consequences. Therefore, a direct correlation between sub-concussive events or one or more concussive events and long-term cognitive slowing and other neurological disorders is not a certainty because of the multiple disparate premorbid risk factors and comorbidities that can contribute to neuropsychiatric problems such as apoe4 allele genotype, drug abuse, alcohol dependence and other medical problems. Repeated blows to the head that result in a general brain movement injury have been determined to produce dementia pugilistica (or punch drunk syndrome as described in boxing).

20. Over the last few years, neuropathologists have described a tauopathy in postmortem tissue of individuals who have a history of being exposed to sports or military activities that presented these individuals with an increased risk of repeated



concussions and mTBI. Termed Chronic Traumatic Encephalopathy (CTE), the neuroanatomical findings are striking. However, currently, CTE does not appear to advance in a predictable and sequential series of stages and progression of physical symptoms—although there are reports that many of the deceased patients who exhibit CTE postmortem did have neurological and neuropsychological impairments prior to their death. The current description of CTE is based on the presence or absence of tauopathy that can be seen in postmortem material. There are some experimental findings reflecting images of phosphorylated tau using positron emission tomography, though, given the absence of substantial research studies, this is not a medically/scientifically accepted method of ascertaining CTE (let alone CTE due to concussions). At present, CTE is only ascertained pathologically and postmortem.

21. Indeed, the majority of the data collected to date is retrospective in nature and restricted to a subset of subjects. Thus, the reported clinical observations (i.e., aggression, disinhibition, suicidality, etc.) are likely to be skewed by selection bias. Just as important is the state of medical and epidemiological science that has yet to systematically study the presence or absence of CTE pathology in non-concussed men and women in a reasoned effort to determine what causal inferences can appropriately be made based on a finding of CTE in decedents who were exposed to concussive events.

22. There are no published epidemiological, cross-sectional, or prospective studies relating to CTE. One of the latest reviews (Jordan BD., The Clinical spectrum of sport-related traumatic brain injury. *Nat Rev Neurol* 2013; 9:222-30) has observed that because of the lack of currently available biomarkers to observe the natural history of CTE, characterization of preclinical and prodromal CTE is premature.

23. Inferring the presence of CTE pathology from the presence of various clinical and symptomatic manifestations in living patients is, in my opinion, scientifically unsupported. Likewise, assuming that the presence of certain tau pathology in selected player patients is causally associated with, and foretells, various clinical and symptomatic manifestations and risk in those patients is, in my opinion, similarly speculative and scientifically premature. Well-controlled and prospective/longitudinal studies have not yet been conducted.

24. Alzheimer's disease is a useful point of reference. Tremendous research and thousands of clinical studies on hundreds of thousands (if not millions) of individuals over the past fifty years has been conducted, yet much uncertainty as to its causes and effects continues to exist. And it took decades of prospective studies involving such patients before the diagnostic and clinical profile of Alzheimer's was understood in the scientific community. Relatedly, it is wise to resist inferring too much from the presence or absence of particular pathology. We know from studies of Alzheimer's disease that there are those patients with Alzheimer's pathology post-mortem that were asymptomatic while alive; the reverse is likewise true, i.e., there are those with Alzheimer's symptomology while living that do not show characteristic pathology on death.

25. There are studies, which link traumatic brain injury to increased risk for dementia, as well as Parkinson's disease and amyotrophic lateral sclerosis (Mortimer et al., 1991; Bower et al., 2003; Lehman, Hein et al., 2012). Currently, the medical and scientific research organizations have not generally accepted the proposition that CTE is diagnosable in living persons. While there are a few papers recounting the use of non-scientific familial accountings of behavioral patterns pre-death as a tool to account for

post-mortem findings of levels of CTE, the peer literature has not drawn a consensus regarding the etiology of CTE, nor is there a consensus regarding a causal connection between CTE and any particular behavioral or cognitive maladies. Some researchers who have published their findings of the diagnosis of CTE on autopsy predicated upon finding tauopathy. Of course, there are a number of neurological diseases that have tauopathy as a primary finding, thereby raising issues regarding the causal connection between this finding and concussive events.

26. It has not been established scientifically that CTE is a unique neurodegenerative disease, especially the modern version of CTE put forward by the Omalu et al. and McKee et al. research groups. There are longstanding, internationally-recognized criteria for diagnosing possible Alzheimer's disease, Parkinson's disease, and ALS. In contrast to CTE, there are thousands of publications on these diseases from researchers around the world. It would be difficult to accept that CTE is an established and unique neurodegenerative disease considering the gaps in our knowledge listed below.

- a. There are no clearly defined and agreed upon neuropathological criteria for CTE. Some investigators have used the presence of tauopathy as a criteria for CTE, however this is not specific.
- b. There is no clearly defined methodology for coding and reporting the gross microscopic features that are not unique to CTE.
- c. There is no agreed upon and codified region of interest, sampling, and staining techniques for neuropathologists to use to diagnose CTE.
- d. There have been no neuropathological studies of appropriate control subjects to determine if they show any of the pathological features believed to be unique to CTE. Studies of men in their 50s and 60s who have a history of chronic depression, substance abuse, and cardiovascular disease, with no known history of neurotrauma or participation in contact sports, are urgently needed.

- e. There is no classification system for research or in the health care system, for clinical features of possible or probable CTE.
- f. There are no large clinical studies with former athletes and non-athletes to determine if a history of MTBI or repetitive non-concussive neurotrauma associated with contact sports is independently associated with depression, suicidality, irritability and emotional dyscontrol, or cognitive impairment after controlling for other factors known to be associated with these clinical symptoms.

27. The identifiable disorders and functional disabilities that the Settlement identifies as qualifying diagnoses in living players of neurocognitive impairments and other diseases/disorders (ALS, Alzheimer's disease, and Parkinson's disease), together with the plan to allow players over the next 65 years to file for a payment if and when their respective circumstances worsen, is an appropriate method to address the deficits, functional limitations, and diseases that players with these findings may experience over their lifetime.

I declare under penalty of perjury that the foregoing is true and correct.

Dated: November 11, 2014

Los Angeles, CA



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David A. Hovda, PhD.

TAB A

Revised October 1, 2014

## DAVID ALLEN HOVDA, PhD

### CURRICULUM VITAE

#### **PERSONAL INFORMATION**

Business Address: Department of Neurosurgery  
David Geffen School of Medicine at UCLA  
10833 Le Conte Avenue, Room 18-228A  
Box 957039  
Los Angeles, California, 90095-7039

Phone Numbers: Laboratory (310) 825-8646  
Office (310) 206-3480  
FAX (Laboratory) (310) 206-3732  
FAX (Office) (310) 794-2147

E-Mail Address: dhovda@mednet.ucla.edu

Birth Date: June 6, 1953

Birth Place: Tomah, Wisconsin, USA

Marital Status: Married July 7, 1979 (Cydney C. Stewart, MD)

#### **EDUCATION:**

1979 BA, Psychology, University of New Mexico, Albuquerque, NM  
1982 MS, Psychobiology, University of New Mexico, Albuquerque, NM  
1985 PhD, Psychobiology, University of New Mexico, Albuquerque, NM  
1987 Postdoctoral Degree, Neurophysiology, Mental Retardation Research Center,  
Neuropsychiatric Institute, UCLA, Los Angeles, CA

#### **PROFESSIONAL EXPERIENCE:**

1978 - 1985 Research Assistant, Laboratory of Dr. Dennis M. Feeney, Department of Psychology,  
University of New Mexico, Albuquerque, NM

1980 - 1984 Coordinator of Freshman Experimental Psychology Laboratories, Department of  
Psychology, University of New Mexico, Albuquerque, NM

1985 - 1987 Postdoctoral Fellow, Laboratory of Dr. Jaime R. Villablanca, Mental Retardation  
Research Center, Department of Psychiatry and Neurobehavioral Science, School of  
Medicine, UCLA, Los Angeles, CA

1987 - 1989 Assistant Researcher, Laboratories of Drs. Jaime R. Villablanca and Harry T.  
Chugani, School of Medicine, UCLA, Los Angeles, CA

1989 - Present Director of the Neurotrauma Laboratory, Department of Neurosurgery, David Geffen  
School of Medicine at UCLA, Los Angeles, CA

1989 - 1994 Assistant Professor – In Residence, Department of Surgery, Division of

David A. Hovda, PhD

Neurosurgery, School of Medicine, UCLA, Los Angeles, CA

1990 - Present Member of the Brain Research Institute, UCLA, Los Angeles, CA

1992 - Present Director of Brain Injury Research Center, Department of Neurosurgery, David Geffen School of Medicine at UCLA, Los Angeles, CA

1994 - 2000 Associate Professor, Department of Surgery, Division of Neurosurgery, UCLA School of Medicine, Los Angeles, CA

1994 - 2000 Associate Professor, Department of Molecular and Medical Pharmacology, UCLA School of Medicine, Los Angeles, CA

2000 – Present Professor, Department of Neurosurgery, David Geffen School of Medicine at UCLA, Los Angeles, CA

2000 – Present Professor, Department of Molecular and Medical Pharmacology, David Geffen School of Medicine at UCLA, Los Angeles, CA

2003 – 2008 Vice-Chief of Research, Division of Neurosurgery, David Geffen School of Medicine at UCLA, Los Angeles, CA

2008 – Present Vice-Chair of Research, Department of Neurosurgery, David Geffen School of Medicine at UCLA, Los Angeles, CA

2014 – Present Vice-Chair of Academic Affairs, Department of Neurosurgery, David Geffen School of Medicine at UCLA, Los Angeles, CA

### **ADMINISTRATIVE EXPERIENCE**

**Director, UCLA Brain Injury Research Center (1992 – Present)** - Over the course of my tenure as Director, I have managed a \$5 million per year budget, overseeing traumatic brain injury research from as many as 25 faculty from 8 different departments throughout the University. In addition to monitoring performance issues, overseeing the allocation of space, recruiting new faculty and coordinating grant applications, I have been heavily involved in public relations. During my tenure, I have launched the University of California Neurotrauma Research Program that actively funds research proposals from all University of California campuses. In addition, I have launched a series of workshops related to neuroscientific techniques, providing funds for equipment and renovation of space in several laboratories throughout the University of California. This UC Neurotrauma program has also been responsible for managing the annual University of California Neurotrauma Meeting. Every year, it has been my responsibility to set the venue, assign the lectures and provide the funding for this event. This meeting consists of a three-day symposium that features the best in neuroscience research throughout the University of California as it is related to traumatic brain injury and recovery of function. Finally, I have been actively involved in fund raising acquiring support from individuals, corporations and sports organizations. Over the years, this has resulted in several million dollars provided to the Brain Injury Research Center to support both research and teaching activities.

**Vice Chair of Research, Department of Neurosurgery, David Geffen School of Medicine at UCLA, Los Angeles, California (2003 – Present)** - Serving at the pleasure of the Department Chair (Dr. Neil Martin), I am responsible for overseeing all neuroscience research for the Department of Neurosurgery. This includes, but not limited to, the supervision of research training for the residents, supporting the applications of grants, reviewing manuscripts prior to submission for publication and coordinating the general neuroscientific education of the faculty and residents.

**Chair, National Institutes of Health Study Section NSD-A (2001 – 2003), Brain Injury and Neurovascular Pathologies (2005 – 2008), Multi-Drug Combinations to Promote Neurological Recovery in Traumatic Brain Injury (2009) for NINDS** - I was responsible for



review and oversight of Program Project, Training, R01, R21, Conference and Center grant applications. Meetings were held three times each year, during which it was my responsibility to resolve differences of opinions regarding scientific merit and methodology, helping to bring the Committee to a consensus of opinion in terms of recommendation for level of enthusiasm. In addition, it was my responsibility to confront reviewers whose comments to the individual investigators did not match the scores they submitted to the Committee, thereby bringing into alignment their communication to the applicant with the final score calculated in terms of enthusiasm. Finally, I dealt with several issues raised by investigators and reviewers related to conflict of interest, intellectual property and scientific misconduct.

**Chairman, UCLA Chancellor's Committee for Animal Research (1991 - 2001)** - Along with chairing meetings twice a month, I was responsible for recruiting faculty and outside members. In addition, I was responsible for all correspondence from the Committee to investigators regarding their protocols, alleged infractions, inspection and certifications. Meeting regularly with the Vice Chancellor for Research, I lobbied for resources and initiated changes related to maintaining Association for the Assessment and Accreditation of Laboratory Animal Care (AAALAC). Finally, it was my responsibility to help resolve conflicts between the Department of Laboratory Animal Medicine and individual faculty members through coordinating meetings with the Chief Veterinarian of UCLA.

### **TEACHING EXPERIENCE**

|                |                                                                                                                                                                 |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1980 - 1984    | Teaching Assistant & Introductory Lab Coordinator, Department of Psychology, University of New Mexico, Albuquerque, NM                                          |
| 1982 - 1983    | Teaching Assistant, Gross Anatomy, Department of Anatomy, School of Medicine, University of New Mexico, Albuquerque, NM                                         |
| 1983           | Teaching Assistant, Integrative Neurophysiology, Departments of Physiology and Psychology, University of New Mexico, Albuquerque, NM                            |
| 1984           | Teaching Assistant, Psychobiology of Motivation, Department of Psychology, University of New Mexico, Albuquerque, NM                                            |
| 1985 - 1989    | Teaching Assistant, Basic Neurology Course, School of Medicine, UCLA, Los Angeles, CA                                                                           |
| 1992 - 2007    | Gross Anatomy 102, David Geffen School of Medicine at UCLA, Los Angeles, CA                                                                                     |
| 1993 - 1994    | Course Co-Coordinator Gross Anatomy 102, Department of Anatomy, UCLA School of Medicine, Los Angeles, CA                                                        |
| 1997 - 1999    | Biomed 218, Gross Anatomy, UCLA School of Medicine, Los Angeles, CA                                                                                             |
| 1998 - 2000    | Pharmacology 234B, Laboratory Techniques, David Geffen School of Medicine at UCLA, Los Angeles, CA                                                              |
| 1998 - 2000    | Neuroscience 211, Neuroimaging, UCLA School of Medicine, Los Angeles, CA                                                                                        |
| 1998 - Present | Neuroscience 207, Integrity of Scientific Investigation, Education, Research, and Career Implications, David Geffen School of Medicine at UCLA, Los Angeles, CA |
| 2013 - Present | Neuroscience 250, Seminar in Neural Development, Degeneration and Repair                                                                                        |

**PSYCHOLOGY:** My teaching experience also includes: Introduction to Psychology, Physiological Psychology, Psychopharmacology and Psychobiology of Motivation. Additionally, I have taught upper division lab sections for students interested in the Neurosciences. The topics I have taught include: neurosurgery (stereotaxic and general), electrophysiology, histology, behavioral analysis, statistical analysis and computer science.

David A. Hovda, PhD

**ANATOMY:** I have taught gross anatomy, including neuroanatomy.

**PHYSIOLOGY:** I have taught, and am currently teaching, neurophysiology to graduate and medical students interested in neuroscience covering such areas as sensory/motor systems, recovery of function, vision, pain and sleep.

#### **Neurosurgical Residents Trained (Current Positions)**

Benham Badie, M.D.; Department of Neurological Surgery, City of Hope, Duarte, CA  
 Monica Wehby, M.D.; Pediatric Neurosurgeon, Legacy Health, Portland, OR  
 Martin Holland, M.D.; Director & Chief, Department of Neurosurgery, Trinity Mother Frances  
 Neuroscience Institute, Tyler, TX  
 P. David Adelson, M.D.; Director, Phoenix Children's Neuroscience Institute, Phoenix, AZ  
 Curtis E. Doberstein, M.D.; Assistant Professor of Neurosurgery, Brown University, Providence, RI  
 David Tandian, M.D.; Neurosurgeon in Indonesia  
 Igor Fineman, M.D.; Huntington Memorial Hospital, Pasadena, CA  
 Aman Patel, M.D.; Departments of Neurosurgery and Radiology, Mt. Sinai Hospital, New York, NY  
 Andrew Cannestra, M.D, Ph.D.; Lysterly Neurosurgery, Jacksonville, FL  
 Joshua Dusick, M.D.; David Geffen School of Medicine at UCLA

#### **Postdoctoral Fellows Trained**

Kenneth D. Steinsapir, MD; 1995, Cosmetic, Facial, & Ophthalmic Plastic Surgery, Diplomate, American Board of Ophthalmology, Jules Stein Eye Institute, UCLA  
 Stefan M. Lee, PhD, 1996, Associate Professor of Neurosurgery, University of Southern California  
 Dorothy A. Kozlowski, PhD; 1997, Assistant Professor of Research, Department of Biological Sciences, DePaul University  
 Mayumi L. Prins, PhD; 1998, Associate Professor, Department of Neurosurgery, UCLA  
 Amir Samii, MD; Professor & Vice Director, Dept of Neurosurgery, International Neuroscience Institute, Hannover, Germany  
 Christopher Giza, MD; Associate Professor, Department of Neurosurgery, UCLA  
 Takeshi Maeda, MD, PhD: Associate Professor, Nihon University, Tokyo, Japan  
 Naoki Aoyama, MD, PhD: Assistant Professor, Nihon University, Tokyo, Japan  
 Tatsuro Kawamata, MD, PhD; Associate Professor of Neurosurgery, Nihon University, Tokyo, Japan  
 Haruhiko Ogawa, MD, PhD; Private practice, Tokyo, Japan  
 Atsuo Yoshino, MD, PhD; Associate Professor, Nihon University, Tokyo, Japan  
 Elisa Roncati-Zanier, MD; Ospedale Maggiore Policlinico IRCCS (Neurocritical Care Unit), Milan, Italy  
 Brenda Bartnik, PhD; Assistant Professor, Loma Linda University, Loma Linda, California  
 Masamichi Fukushima, MD; Associate Professor, Nihon University, Tokyo, Japan  
 Nobuhiro Moro, MD, PhD; Nihon University, Tokyo, Japan  
 Ying Bryant, PhD; Walter Reed Army Institute of Research, Silver Springs, Maryland  
 Katsunori Shijo, MD, PhD; Nihon University, Tokyo, Japan  
 Tiffany Greco, PhD University of Maryland (In Training)  
 Nobuo Kutsuna, MD, PhD; Nihon University, Tokyo, Japan (In Training)

#### **Graduate Students Trained**

Mayumi L. Prins; PhD; Graduated 1997, Associate Professor, Dept of Neurosurgery, UCLA  
 Amy Moore; PhD; Graduated 1999, Assistant Professor, Santa Clara University  
 Cheri Osteen, PhD; Graduated 2002, Science Medical Writer, Amgen, Thousand Oaks, CA  
 Emily (Shieh) Ip, PhD; Graduated 2002, Scientist, Pre-Clinical Project Management, Anacor Pharmaceuticals, CA

David A. Hovda, PhD

Gene Gurkoff, PhD; Graduated 2006, Assistant Professional Researcher, Dept of Neurological Surgery, UC Davis

Maxine Reger, PhD; Graduated 2011, Postdoctoral Fellow, National Institutes of Health/NIAAA

Naomi Santa Maria, Graduated 2012, Postdoctoral Fellow, Cal Tech

#### **Medical Students Trained**

Igor Fineman; Huntington Memorial Hospital, Pasadena, CA

Amir Samii; Professor & Vice Director, Dept of Neurosurgery, International Neuroscience Institute, Hannover, Germany

Bahman Badie; Department of Neurological Surgery, City of Hope, Duarte, CA

Deidre Fisher; Northside Hospital, Atlanta, GA

Karin Fu; Department of Radiation Oncology, UC San Francisco, CA

#### **UNIVERSITY COMMITTEE ASSIGNMENTS**

Graduate Training Committee for the Department of Molecular and Medical Pharmacology

Eastside Master Planning Committee on the Vivarium (Co-Chair)

Specialty Training and Advanced Research (STAR) Committee

Master Plan II Vivarium Planning Committee

Committee for Evaluation of a Neuroscience Graduate Students Progress

School of Medicine Space Committee

Space Committee for the Brain Research Institute

Veterinarian Search Committee

Committee for Esprit de Corps for the Brain Research Institute

Interdepartmental Neuroscience Program's Advising Committee

Committee for the UCLA Medical School's "Frontiers in Science" (Program, 1991)

Chancellor's Committee for Animal Research (Chairman) (1991 – 2001)

Appointments and Promotions Committee for the Department of Surgery (2002 – 2010)

Council on Academic Personnel, Ad Hoc Review Committee (2003)

Selection Committee for the John H. Walsh Young Investigator Research Prize (2004 – Present)

Academic Senate Committee on Committees (2005 – 2007)

Working Group on Threats to Research (2009 – Present)

UCLA Council on Academic Personnel (2010 – 2014)

University of California Council on Academic Personnel (2011 – 2012)

Operations Sub-Committee: Clinical Operations, Operation Mend (2012 – Present)

Integrated Center for Neural Repair Steering Committee (2012 – Present)

UCLA Human Pluripotent Stem Cell Research Oversight (hPSCRO) Committee (2012 – Present)

UCLA Council on Academic Personnel (Chair) (2013 – 2014)

UCLA Neuroscience Planning Committee (2014 – Present)

Graduate Student Committee for Doctoral Candidacy:

Bioengineering

Ms. Naomi Santa Maria (2012)

Integrative Biology and Physiology

Ms. Cheri Osteen (2002)

Ms. Shoshanna Vaynman (2005)

Molecular and Medical Pharmacology

Ms. Lorraine Hanssen (2002)

Mr. Dennis Harvey (2003)

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Ms. Amy Shu-Jung Yu (2011)  
 Neurobiology:  
 Ms. Mayumi Prins (1997)  
 Ms. Dorothy Harris (2007)  
 Neuroscience:  
 Mr. Mike De Rosa (1992)  
 Ms. Gina R. Poe (1993)  
 Mr. Douglas Nitz (1993)  
 Ms. Anne Blood (1994)  
 Ms. Amy Moore (1999)  
 Ms. Emily Shieh (2002)  
 Mr. Sameer Sheth, (2003)  
 Mr. Jeff Gotts (2003)  
 Mr. Erh-Fang Lee (2007)  
 Mr. Che Hutson (2009)  
 Dr. Jason S. Hauptman (2011)  
 Mr. Jaehoon Choe (2014)  
 Ms. Daya Alexander (In Training)  
 Mr. Derek Verley (In Training)  
 Nursing:  
 Ms. Norma McNair (2012)  
 Psychology:  
 Ms. Stacey L. Young (1993)  
 Mr. Alan S. Keys (1994)  
 Ms. Aimee Hunter (2001)  
 Mr. Michael Rowe (2002)  
 Ms. Maxine Reger (2011)

## **PROFESSIONAL ACTIVITIES:**

### **Positions in National and International Societies**

|                |                                                    |
|----------------|----------------------------------------------------|
| 1999 – 2002    | Councilor for the National Neurotrauma Society     |
| 1995 - 1996    | Vice President, National Neurotrauma Society       |
| 1996 - 1997    | President, National Neurotrauma Society            |
| 2001 – 2002    | Co-Chairperson, Women in Neurotrauma Research      |
| 2004 – Present | Councilor, National Neurotrauma Society            |
| 2006 – 2010    | Secretary, International Neurotrauma Society       |
| 2007 – 2009    | President-Elect, International Neurotrauma Society |
| 2008 – 2009    | President, National Neurotrauma Society            |
| 2009 – 2011    | President, International Neurotrauma Society       |

### **Memberships in Academic Societies**

Society for Neuroscience  
 American Association for the Advancement of Science  
 The Scientific Research Society of Sigma Xi  
 British Brain Research Association  
 European Brain and Behavior Society  
 International Brain Research Organization  
 The National Neurotrauma Society

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The Society of Cerebral Blood Flow and Metabolism  
The International Neurotrauma Society

### **National and International Committee Assignments**

External Advisory Committee: Program Project, Kansas Center for Mental Retardation and Human Development, The University of Kansas Medical Center (1992 – 1999)  
External Advisory Committee: Program Project, Division of Neurosurgery, University of Pennsylvania (1993-1999)  
National Neurotrauma Society Nominating Committee (1993)  
International Advisory Committee for the International Neurotrauma Society (1994)  
National Neurotrauma Society Abstract Selection Committee Chairman (1996)  
Kentucky Spinal Cord and Head Injury Research Board (1997 – Present)  
Reviewer for the State of Kentucky Neurotrauma Research Initiative (1999 – Present)  
1<sup>st</sup> Joint Symposium of the National & International Neurotrauma Societies Program Committee (2001 – 2004)  
National Neurotrauma Society: 2003 NNTS Meeting Program Committee (2002 – 2003)  
Brain Injury Association of America: Blue Ribbon Panel Review of Brain Injury Risk of Amusement Park Rides (2002)  
Defense and Veterans Brain Injury Center: Member, Scientific Advisory Board (2004 – Present)  
International Scientific Advisory Board – Uppsala University, Uppsala, Sweden (2005 – Present)  
Brain and Spinal Injury Center: Scientific Advisor, ICP 2007 (2006 – Present)  
Brain Injury Association of California, Board of Directors (2006 – 2013)  
Department of Defense, Defense Health Board, Traumatic Brain Injury: External Advisory Subcommittee (2008 – 2011)  
Department of Defense Post-Traumatic Stress Disorder and Traumatic Brain Injury Clinical Consortium (INTRuST): Scientific Advisory Board (2008 – Present)  
Brain Injury Association of America Board of Directors (2009 – Present)  
Department of Defense, Defense Health Board (2011 – Present)  
University of Maryland External Advisory Committee (2011 – Present)  
Department of Defense, U.S. Army Medical Research and Materiel Command, Combat Casualty Care Research Program, Neurotrauma Steering Committee (2012 – Present)  
National Academy of Neuropsychology Foundation, Board of Trustees (2013 – Present)  
Cohen Veterans Center, Advisory Board (2013 – Present)  
UNM Alumni Association Board of Directors (2013 – Present)  
Pediatric Neurocritical Care Research Group (2013 – Present)

### ***NATIONAL INSTITUTES OF HEALTH COMMITTEE ASSIGNMENTS***

NINDS Neurological Disorders (Stroke & Trauma) Site Visit Team (1991)  
NINDS Neurological Disorders (Stroke & Trauma) Site Visit Team (1991)  
NINDS Neurological Disorders (Stroke & Trauma) Site Visit Team (1993)  
NINDS Neurological Disorders (Stroke & Trauma) Ad Hoc (1996)  
NINDS Neurological Disorders (Stroke & Trauma), Neurological Sciences and Disorders A (NSD-A) Committee Member (1998 – 2003); Chairman (2001 – 2003)  
NINDS Neurological Disorders (Stroke & Trauma) Reverse Site Visit Team (2001)  
National Institute of Child Health and Human Development, National Center for Medical Rehabilitation Research, Cooperative Multicenter TBI Clinical Trials Network, Advisory Board Member (2002 – Present)  
TBI Clinical Trials Network, Steering Committee Member (2004 – Present)

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Brain Disorders and Clinical Neuroscience (BDCN), Committee Member (2005 – 2008)  
Brain Injury and Neurovascular Pathologies (BINP), Committee Member (2006 – 2011); Chairman  
(2006 – 2008)  
Multi-Drug Combinations to Promote Neurological Recovery in Traumatic Brain Injury, Chairman  
(2009)  
Eunice Kennedy Shriver National Institute of Child Health and Human Development, Chairman (April,  
2009)  
RC4 Editorial Board Reviewer (2010)

### ***EDITORIAL MEMBERSHIP***

Restorative Neurology and Neuroscience, Elsevier  
Developmental Brain Dysfunction, S. Karger AG  
Journal of Neurotrauma, Mary Ann Liebert  
Developmental Neurorehabilitation, Informa Healthcare  
Eye and Brain, Dove Medical Press  
Experimental Neurology, Elsevier

### ***SCIENTIFIC REVIEWS***

#### **Journals:**

|                                                 |                                                      |
|-------------------------------------------------|------------------------------------------------------|
| <u>Brain Research</u>                           | <u>Journal of Pediatrics</u>                         |
| <u>Journal of Neurotrauma</u>                   | <u>Brain Research Bulletin</u>                       |
| <u>Restorative Neurology &amp; Neuroscience</u> | <u>Journal of Neurosurgery</u>                       |
| <u>Psychological Review</u>                     | <u>Developmental Brain Dysfunction</u>               |
| <u>Life Sciences</u>                            | <u>Journal of Applied Physiology</u>                 |
| <u>Journal of Neuroscience</u>                  | <u>Journal of Physiology</u>                         |
| <u>Experimental Neurology</u>                   | <u>Pharmacology Biochemistry &amp; Behavior</u>      |
| <u>Journal of Cerebral Blood Flow &amp;</u>     | <u>Neuroscience</u>                                  |
| <u>Metabolism</u>                               | <u>Journal of the Institute for Laboratory</u>       |
| <u>NeuroImage</u>                               | <u>Animal Research</u>                               |
| <u>Proceedings of the National Academy</u>      | <u>Critical Care Medicine</u>                        |
| <u>of Science</u>                               | <u>NS Drugs</u>                                      |
| <u>Neurology</u>                                | <u>Regional Immunology</u>                           |
| <u>Journal of Neuroscience Research</u>         | <u>Journal of Neurochemistry</u>                     |
| <u>Surgical Neurology</u>                       | <u>European Journal of Neuroscience</u>              |
| <u>Current Pharmaceutical Design</u>            | <u>Journal of Alzheimer Disease Assoc. Disorders</u> |
| <u>Brain Pathology</u>                          | <u>Journal of Neuroimaging</u>                       |
| <u>Behavioural Brain Research</u>               | <u>Neuroscience &amp; Biobehavioral Reviews</u>      |
| <u>Annals of Neurology</u>                      | <u>Developmental Neuroscience</u>                    |
| <u>Archives of Physical Medicine</u>            | <u>Acta Neurochirurgica</u>                          |
| <u>And Rehabilitation</u>                       | <u>Journal of Neuroscience Methods</u>               |
| <u>Molecular and Cellular Biochemistry</u>      | <u>Surgical Neurology International</u>              |
| <u>Neuroscience Letters</u>                     | <u>Molecular and Cellular Biochemistry</u>           |
| <u>Brain</u>                                    | <u>New England Journal of Medicine</u>               |
| <u>Nature Reviews Neuroscience</u>              |                                                      |

#### **Books:**

Neural Transplantation and Regeneration, G. D. Das and R. B. Wallace (eds.), Journal of



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Electrophysiological Techniques, 1986

Trauma Section, Youmans Textbook of Neurosurgery (6<sup>th</sup> Edition), Elsevier Publishers, 2010

### **CONSULTATION AND ADVISORY SERVICES**

Knoll AG, CNS-Research, Knollstrasse, Ludwigshafen, Germany, December 10, 1991  
 NEUREX Corporation, Brain Injury Research, Menlo Park, California, March 4, 1992  
 Astra Corporation, Traumatic Brain Injury Symposium, Anaheim, California, February 9-10, 1997  
 Neurocrine Biosciences, San Diego, California, 1997-1998  
 National Football League, New York, NY, August 14-17, 1998  
 National Football League, Phoenix, AZ, August 24-25, 1998  
 World Boxing Council, 1989 – Present  
 Perot Family Center for Brain and Nerve Injuries at Children's Medical Center (External Advisory Board), Dallas, Texas, 2003 – Present  
 New Jersey Commission on Brain Injury Research (New Jersey Department of Health), Trenton, New Jersey, 2006 – Present  
 Innogene Kalbiotech Pte. Ltd., Jakarta 13210, Indonesia 2006 – 2008  
 Medical Advisory Board, Sports Legacy Institute, Waltham, MA, 2008 – 2011  
 Injury and Traumatic Stress Consortium (INTRuST), Scientific Advisory Committee, 2008 – Present  
 US Department of Defense, TBI/PTSD Advisory Panel, 2009 – Present  
 State of California, Senate Health Committee Hearing, January 13, 2010  
 Neural Analytics, Advisory Board (2013 – Present)

### **Granting Agencies:**

American Institute of Biological Sciences (AIBS), 1999  
 Department of Veterans Affairs, 1999  
 Kentucky Spinal Cord and Head Injury Research Board  
 The Wellcome Trust, London, England  
 The American Heart Foundation  
 UCLA Stein/Opppenheimer Foundation  
 Mission Connect  
 US MEXUS-CONACYT  
 Uniformed Services University of the Health Sciences  
 National Institutes of Health: National Institute of Neurological Disorders and Stroke  
 Scientific Peer Advisory and Review Services (US Army Medical Research and Material Command, Department of Defense Congressionally Directed Medical Research Program/TBI)  
 Centers for Disease Control and Prevention, Coordinating Center for Environmental Health/ATSDR and Injury Prevention  
 Program Merit Review Committee, Norman Hackerman Advanced Research Program (State of Texas)  
 2013 Opppenheimer Program

### **HONORS**

1985 Benjamin Franklin Haught Memorial Award  
 1985 - 1987 National Institutes of Health Postdoctoral Traineeship  
 1987 Giannini Foundation Postdoctoral Scholar Award  
 1991 The National Head Injury Foundation Young Investigator Award



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1992 Lind Lawrence Eminent Scholar  
 2006 Women in Neurotrauma Research for Support of Students  
 2009 Sarah Jane Brain Foundation David Hovda Angel Award  
 2011 Strength of the Nation Award (US Army)  
 2012 University of New Mexico Alumni Association's James Zimmerman Award  
 2014 2014 National Training Center Award (Ft. Irwin, CA)  
 2014 Keynote Speaker, Graduate Commencement Ceremony, University of New Mexico

**NAMED LECTURES**

2008 1<sup>st</sup> Annual Deborah L Warden Lectureship  
 2011 1<sup>st</sup> Annual Mark P. Clio MD Lectureship

**RESEARCH INTERESTS**

Incorporating both basic and clinical neuroscience, my interests are primarily in the areas of neuroplasticity and recovery of function after brain injury. Specifically, my research activity has dealt with the following areas: (1) Recovery of function after brain injury; (2) Electro-physiological characteristics of the injured brain; (3) The biochemical and morphological analysis of the brain in response to injury; (4) Neurotransplantation; (5) Metabolic changes after brain injury; and (6) Effects of brain injury upon development.

**RESEARCH AWARDS GRANTED**

Program Director, UCLA Brain Injury Research Center  
 University of California, Office of the President  
 Permanent augmentation of support awarded in perpetuity \$ 5,000,000\*/  
 State of California, 1999 – Present per year  
 \*Reduced to \$2,200,000 in 2005 due to State Budget Cuts

Investigator  
 "UCLA Program in Memory Restoration"  
 Department of Defense, DARPA-14-08-RAM-PA-010 (PI – Fried)  
 09/01/14 – 08/31/18 \$ 3,877,959/year

Program Director/Principal Investigator  
 "TBI-Induced Cerebral Metabolic Depression and Recovery"  
 National Institutes of Health, 1 P01 NS 058489  
 04/01/09 – 03/31/14 \$ 1,348,087/year

Principal Investigator, "Using glutamatergic pharmacotherapy to optimize TBI recovery"  
 National Institutes of Health, 1 R01 NS27544  
 07/01/13 – 06/30/18 \$ 218,750/year

Mentor, "UCLA Neurosurgery Research Education Program"  
 National Institutes of Health, 1 R25 NS079198

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07/01/12 – 06/30/17 \$ 91,642/year

Investigator, "Propylene Glycol after Traumatic Brain Injury (TBI):  
Biomarker of Altered Brain Metabolism"

National Institutes of Health, 1 R21 NS057252-01A1 (PI – Glenn)  
04/01/08 – 03/31/10 \$ 150,000/year

Principal Investigator, "Loss of Developmental Plasticity after Head Injury"

National Institutes of Health, 1 R01 NS27544  
01/19/06 – 12/31/09 \$ 309,000

Investigator, "Axon Plasticity and Recovery of Function after  
Traumatic Brain Injury"

National Institutes of Health, 1 R01 NS055910-01A1 (PI – Harris)  
06/01/07 – 05/31/11 \$ 304,171

Investigator, MRS Detects Metabolic Dysfunction After Brain Injury

National Institutes of Health, R01 NS 49471 (PI – Vespa)  
01/01/06 – 12/31/09 \$ 248,000

Investigator, Age-Dependent Ketone Metabolism After Brain Injury

National Institutes of Health, 1 R01 NS052406 (PI – Prins)  
7/1/05 – 6/30/08 \$ 250,097

Investigator, Voluntary Exercise Therapy after Traumatic Brain Injury

National Institutes of Health, 1 R21 NS48535 (PI – Griesbach)  
4/1/05 – 1/31/07 \$ 392,663

Collaborator, In Vivo Imaging of Post-Traumatic Cerebral Amyloid Deposition

National Institutes of Health  
R21 (Bergsneider)

Investigator, NCRR Shared Instrument Grant entitled "Research Animal  
Magnetic Resonance Imaging Instrument"

NIH RR13065, 5/15/99 – 5/14/00 \$ 400,000

Sponsor, The Role of Endothelin in Experimental Brain Hemorrhage:

Influence on Blood Flow and Metabolism, Tom Glenn. 1173-F11,  
American Heart Association, 7/1/98 - 6/30/00 \$ 25,600

Principal Investigator, Project III, Traumatic Brain Injury Induced Cellular  
Vulnerability: Relationship Between Cerebral Blood Flow and Metabolism.

Program Project entitled: "The Neurometabolic Pathobiology of Traumatic  
Brain Injury", Program Project Director, Donald P. Becker, NS30308-6  
National Institute of Health, 7/1/97 - 6/30/04 \$1,088,045

Co-Program Director, Program Project entitled: "The Neurometabolic

Pathobiology of Traumatic Brain Injury", Program Project Director,  
Donald P. Becker, MD, NS30308-06A2, National Institutes of Health,

David A. Hovda, PhD

|                                                                                     |               |
|-------------------------------------------------------------------------------------|---------------|
| 7/1/98-6/30/04.                                                                     | \$3,748,094   |
| Investigator, Delayed Cell Death Following Traumatic Brain Injury.                  |               |
| Principal Investigator, Stefan M. Lee, Ph.D.                                        |               |
| NIH R29 NS37363-01, 12/01/98 - 11/30/01                                             | \$ 498,143    |
| Principal Investigator, The 15 <sup>th</sup> Annual National Neurotrauma Symposium, |               |
| NIH 1-R13-NS37076-1, 9/15/97 - 8/31/98                                              | \$ 15,000     |
| Principal Investigator, Excitotoxic and Neuronal Dysfunction in Brain Injury,       |               |
| NIH RO1-NS27544, 9/1/96 - 8/31/99                                                   | \$ 534,251    |
| Principal Investigator, Omega-Conopeptides Reduces the Ionic and Metabolic          |               |
| Dysfunction Following Fluid Percussion Brain Injury In Rat,                         |               |
| NEUREX Corp., 1992-1994                                                             | \$ 40,000     |
| National Institutes of Health Training Grant (# HD07416)                            |               |
| Program Director: Dr. Bruce Dobkin, 9/30/91 - 9/29/96                               | \$ 656,907    |
| Principal Investigator, Calcium Accumulation Following Traumatic Brain              |               |
| Injury. Brain Trauma Foundation, 7/1/91 - 6/31/92                                   | \$ 50,000     |
| Principal Investigator, Metabolic Dysfunction Following Fluid Percussion            |               |
| Brain Injury in Rat. Project in a center grant entitled "UCLA Head                  |               |
| Injury Research Center". Program Director, Donald P. Becker. NIH                    |               |
| NS30308, 1/1/92 - 12/31/96                                                          | \$ 353,224    |
| Principal Investigator, Vulnerability in Brain Injury: Thresholds for Recovery.     |               |
| Project in a center grant entitled "UCLA Head Injury Research Center".              |               |
| Program Director, Donald P. Becker. Depart. Health and Human Services,              |               |
| Public Health Service, NS30308, 1/1/92 - 12/31/96                                   | \$ 558,057    |
| Co-Principal Investigator, Excitotoxic Ionic Fluxes and Neuronal                    |               |
| Dysfunction in Traumatic Brain Injury, NIH 5 RO1 NS27544,                           |               |
| 4/1/90 - 3/31/93                                                                    | \$ 382,553    |
| Co-investigator, Biochemical Analysis of Traumatic Brain Injury using               |               |
| Microdialysis Probes, Research and Education Institute, Inc.                        |               |
| Harbor-UCLA Medical Center, 9/1/90 - 8/31/91                                        | \$ 3,000      |
| Co-Principal Investigator, Brain Injury and Recovery of Function                    |               |
| Lind Lawrence Foundation, 10/8/90 - Present                                         | \$ 125,000/yr |
| Co-Principal Investigator, Recovery of Function After Brain Injury                  |               |
| Annie Laurie Aitken Charitable Trust, 6/1/90 - 5/31/92                              | \$ 188,100    |
| Principal Investigator, Measurement of Cerebral Calcium Following                   |               |
| Brain Injury in the Rat. Committee on Research: UCLA 7/1/89 - 6/30/90               | \$ 1,900      |

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Co-investigator of a supplement to a program project, entitled, "Neuroscience Research With PET", Dr. Michael E. Phelps, P.I. NIH P01 NS15654, 5/1/88 - 8/31/89 \$ 315,603

Principal Investigator, Neonatal Cerebral Hemispherectomy and Visual Field Impairments. The Giannini Foundation, 1987 - 1988 \$ 17,000

Principal Investigator, Neonatal Hemispherectomy and Integrity of the Visual Fields. Neuropsychiatric Institute Biomedical Research Support Grant 10/31/86 - 10/31/87 \$ 4,016

Principal Investigator, Anatomical Brain Reorganization in Cats with Neonatal or Adult Hemispherectomy. Neuropsychiatric Institute Biomedical Research Support Grant 10/31/85 - 10/31/86 \$ 4,463

**LECTURES AND PRESENTATIONS:**

1. Feeney DM, Gonzalez A, Law WA, **Hovda DA**. Amphetamine, haloperidol and experience affect rate of recovery after motor cortex injury. 13th International congress of Neuropsychopharmacology, 1982, Jerusalem, Israel.
2. Feeney DM, Boyeson MG, **Hovda DA**, Salo AA. Catecholamines affect recovery from brain injury. 5<sup>th</sup> International Catecholamine Symposium, 1983, Goteborg, Sweden.
3. Sutton RL, Dail WG, **Hovda DA**, Feeney DM. Chromaffin cell autografts in cats with cortical injury, VA/PVA International Symposium on Neural Regeneration, The Asilomar Conference Center, Pacific Grove, California, December 8-12, 1985.
4. Villablanca JR, Shook BL, **Hovda DA**. Fetal neocortex transplant into degenerating kitten thalamus. Schmitt Neurological Sciences Symposium, 1987, Rochester, New York.
5. Villablanca JR, **Hovda DA**. Sparing from neuronal degeneration matches recovery of function in neonatal versus adult cerebral hemispherectomized cats. OASI Institute for Research and Prevention of Mental Retardation and Aging, 1988, Troina, Italy.
6. **Hovda DA**, Kawamata T, Yoshino A., Katayama Y, Becker DP. Administration of excitatory amino acid antagonists via microdialysis prevents the increase in glucose utilization seen after concussive brain injury. Excitatory Amino Acid Receptors in the Brain; Functions and Disorders, 1990, Montreal, Canada.
7. Kawamata T, Katayama Y, Yoshino A., **Hovda DA**, Becker DP. Administration of kynurenic acid via microdialysis prevents the increase in glucose utilization seen immediately following traumatic brain injury. American Association of Neurological Surgeons, 1990, Nashville, TN.
8. **Hovda DA**, Yoshino A, Kawamata T, Katayama Y, Becker DP. Dynamic changes in local cerebral glucose utilization following fluid percussion injury: Evidence of a hyper- and subsequent hypometabolic state. American Association of Neurological Surgeons, 1990, Nashville, TN.
9. Kawamata T, Katayama Y, **Hovda DA**, Yoshino A., Becker DP. Administration of kynurenic acid

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via microdialysis attenuates lactate accumulation following concussive brain injury in rats. Neurotrauma Society Meeting, 1990.

10. Yoshino A, **Hovda DA**, Katayama Y, Kawamata T, Becker DP. Hippocampal CA3 lesion prevents the post-concussive increase in glucose metabolism in CA1. Neurotrauma Society Meeting, 1990.
11. Smith M, Fineman I, **Hovda DA**, Kawamata T, Yoshino A, Becker DP. Intracellular calcium accumulates for at least 48 hours following fluid percussion brain injury in the rat. Neurotrauma Society Meeting, 1990.
12. Tandian D, Romhanyi RS, **Hovda DA**, Yoshino A, Kawamata T, Balady NF, Becker DP. Amphetamine enhances both behavioral and metabolic recovery following fluid percussion brain injury. Neurotrauma Society Meeting, 1990.
13. Romhanyi RS, Tandian D, **Hovda DA**, Kawamata T, Yoshino A, Cristescu SV, Becker DP. Catecholaminergic stimulation enhances recovery of function following concussive brain injury. Neurotrauma Society Meeting, 1990.
14. Becker DP, **Hovda DA**. Concussive Unconsciousness: or "When can a football player who has been knocked out return to competition". 36th Annual Western Neurosurgical Society Meeting, 1990, Honolulu, HI.
15. **Hovda DA**, Yoshino A, Fineman I, Smith M, Becker DP. Intracellular calcium accumulates for at least 48 hours following fluid percussion brain injury in rat. American Association of Neurological Surgeons, 1991, New Orleans, LA.
16. Yoshino A, **Hovda DA**, Katayama Y, Kawamata T, Becker DP. Hippocampal CA3 lesion prevents the post-concussive metabolic derangement in CA1. American Association of Neurological Surgeons, 1991, New Orleans, LA.
17. Romhanyi RS, **Hovda DA**, Tandian D, Becker DP. Diffuse and prolonged inhibition of protein synthesis following fluid percussion injury: In vivo measurements using [<sup>14</sup>C]leucine autoradiography. American Association of Neurological Surgeons, 1991, New Orleans, LA.
18. Kawamata T, Katayama Y, **Hovda DA**, Yoshino A, Becker DP. Post-traumatic lactate accumulation is a result of ionic fluxes via excitatory amino acid activated channels. American Association of Neurological Surgeons, 1991, New Orleans, LA.
19. **Hovda DA**, Katayama Y, Yoshino A, Kawamata T, Becker DP. Metabolic derangement following concussive brain injury. First International Neurotrauma Meeting, May 14-17, 1991, Fukushima, Japan.
20. Adelson PD, **Hovda DA**, Villablanca JR, Tatsukawa K. Sparing of visual fields after neonatal cerebral hemispherectomy: Reorganization of the cortical-tectal pathway. Congress of Neurological Surgeons (1991).
21. Brown D, Chen S, Tatsukawa K, Nassir Y, **Hovda DA**, Villablanca J, Chugani H. Muscarinic cholinergic receptor binding following neonatal or adult hemispherectomy in the cat. American Epilepsy Society (1991).

22. Loopuijt LD, Efrahim A, **Hovda DA**, Villablanca JR, Chugani HT. D2 Receptor densities of striatum in adult and neonatal hemispherectomized cats. 7th International Catecholamine Symposium, 1992.
23. Becker DP, **Hovda DA**. Metabolic derangement following concussive brain injury. 1992 Winter Conference on Brain Research, January, 1992, Steamboat Springs, CO.
24. Badie H, **Hovda DA**, Becker DP. Glial fibrillary acidic protein expression following concussive brain injury: A quantitative study of the effects of a second insult. American Association of Neurological Surgeons, April 11-16, 1992.
25. Thomas S, **Hovda DA**, Samii M, Becker DP. Fluid-percussion injury in the developing rat pup: Studies of cerebral metabolism. American Association of Neurological Surgeons, April 11-16, 1992.
26. Badie B, Karimi S, Fineman I, Ross RA, **Hovda DA**, Becker DP, Martin N. Metabolic alterations accompany ionic disturbances during hypoxic insult to the retina: An *in vitro* study. American Association of Neurological Surgeons, April 11-16, 1992.
27. Adelson PD, Ogawa H, **Hovda DA**, Becker DP, Caron MJ. Acute alterations in cerebral metabolism and glutamate concentrations following suction/ablation injury. American Association of Neurological Surgeons, April 11-16, 1992.
28. Fu K, Smith M, Thomas S, **Hovda DA**, Becker DP. Cerebral concussion produces a state of vulnerability lasting for as long as 5 hours. American Association of Neurological Surgeons, April 11-16, 1992.
29. **Hovda DA**. Microdialysis in epilepsy, trauma and ischemia. 26th Winter Conference on Brain Research, Whittler, BC, Canada, January 23-30, 1993.
30. **Hovda DA**. Head Injury: Modeling and Mechanisms. 4th Annual Spring Brain Conference, Orlando, FL, March 18-21, 1993.
31. Fisher D, Velarde F, Adelson PD, **Hovda DA**, Becker DP. Fluid percussion injury induces prolonged changes in cerebral blood flow. American Association of Neurological Surgeons, April 24-29, 1993.
32. Doberstein C, Fineman I, **Hovda DA**, Martin N, Becker DP. Metabolic alterations accompany ionic disturbances during a hypoxic insult to the retina: An *in vitro* study. American Association of Neurological Surgeons, April 24-29, 1993.
33. Ogawa H, **Hovda DA**, Becker DP. Cerebral protein synthesis in the rat: Further studies following fluid percussion injury. American Association of Neurological Surgeons, April 24-29, 1993.
34. Lee SL, Sindt R, von Stück SL, **Hovda DA**, Becker DP. Quantitative morphological analysis of cortical contusion injuries in rats. American Association of Neurological Surgeons, April 22-27, 1995.



35. Lee SL, **Hovda DA**, Becker DP. Core of degenerating neurons in parietal cortex induces spreading depression immediately following traumatic brain injury. American Association of Neurological Surgeons, April 22-27, 1995.
36. Bergsneider M, Kelly DF, Shalmon E, Caron MJ, Mazziotta J, Phelps ME, **Hovda DA**, Becker DP. Remote metabolic depression following traumatic brain injury: Results from human positron emission tomography. American Association of Neurological Surgeons, April 22-27, 1995.
37. Lee SM, Lifshitz J, Le HM, Smith ML, **Hovda DA**, Becker DP. Uncoupling of glucose metabolism and blood flow in degenerating cortical and hippocampal areas following unilateral cortical contusion. American Association of Neurological Surgeons, April 22-27, 1995.
38. Shalmon E, Kelly DF, Bergsneider M, Caron MJ, Smith MS, Iocolano SE, **Hovda DA**, Becker DP. Human cerebral microdialysis: Dynamic changes in EAA following severe brain injury. American Association of Neurological Surgeons, April 22-27, 1995.
39. Frazee JG, Luo X, Shiroishi MS, **Hovda DA**. Delayed treatment of prolonged ischemia by retrograde transvenous neuroperfusion prevents stroke. American Association of Neurological Surgeons, April 22-27, 1995.
40. Lee SM, Smith ML, **Hovda DA**, Becker DP. Concussive brain injury results in chronic vulnerability to post-traumatic seizures. 7th Annual Spring Brain Conference, March 6-10, 1996.
41. **Hovda DA**, Bergsneider M, Kelly D, Martin N, Vespa P, Becker DP. Metabolic dysfunction following brain injury. 7th Annual Spring Brain Conference, March 6-10, 1996.
42. Thomas S, **Hovda DA**, Becker DP, Samii M. Glucose metabolism in the developing rat pup following diffuse brain injury. Joint Meeting of the German and British Neurosurgical Societies, September 14-17, 1996.
43. Vespa PM, Bergsneider M, **Hovda DA**, Prins M, Becker DP. Transient Glutamate Fluctuations after Traumatic Brain Injury associated with Altered Regional Glucose Metabolism: A combined Microdialysis and Positron Emission Tomography study. Fiftieth Annual Meeting of the American Academy of Neurology, Minneapolis, MN, April 28-30, 1998.
44. Bergsneider M, **Hovda DA**, Lee SM, Kelly DF, Huang SC, McArthur DL, Bookheimer SY, Vespa PM, Shalmon E, Phelps ME, Becker DP. Depression of Cerebral Glucose Metabolism Following Human Traumatic Brain Injury: A Functional and Regional Analysis Using Positron Emission Tomography. American Association of Neurological Surgeons Annual Meeting, New Orleans, LA, April 24 - 29, 1999.
45. Bergsneider M, Vespa PM, Sehati N, Shalmon E, Kelly DF, Huang SC, Phelps ME, **Hovda DA**, Becker DP. Early Fluorodeoxyglucose Pet is Predictive of Delayed Neuroanatomical Findings Following Human Traumatic Brain Injury. American Association of Neurological Surgeons Annual Meeting, New Orleans, LA, April 24-29, 1999.
46. Nenov VI, Etchepare M, Yamaguchi Y, McArthur D, Vespa P, Buxey F, Martin N, **Hovda DA**, Kraus J, Becker DP. Automated Data Capture and Analysis at UCLA's Neurosurgical Intensive Care Unit. American Association of Neurological Surgeons Annual Meeting, San Francisco, CA,



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April 8-13, 2000.

47. Glenn TC, Samii A, Patel A, Lee SM, DeJesus C, Sugay J, Martin NA, **Hovda DA**. Induced Subarachnoid Hemorrhage is a Significant Secondary Insult as Determined in a Lateral Fluid Percussion Model of Traumatic Brain Injury. American Association of Neurological Surgeons Annual Meeting, San Francisco, CA, April 8-13, 2000.
48. Maeda T, Samii A, **Hovda DA**, Lee SM. Restoration of Near-Normal rCBF using Verapamil and Vasopressors Following Traumatic Brain Injury in Rats. American Association of Neurological Surgeons Annual Meeting, San Francisco, CA, April 8-13, 2000.
49. Giza CC, Lee SM, Kremen TJ, **Hovda DA**, Becker DP. Concussion in the developing rat triggers NMDA receptor dysfunction by altering subunit composition in cortex and hippocampus. American Association of Neurological Surgeons Annual Meeting, Toronto, Ontario, Canada, April 21-26, 2001.
50. Lee SM, Moore AH, Shieh E, **Hovda DA**, Becker DP. Acute Depression of Oxidative Metabolism Following Experimental Concussion. American Association of Neurological Surgeons Annual Meeting, Toronto, Ontario, Canada, April 21-26, 2001.
51. Maeda T, Glenn TC, **Hovda DA**, Lee SM, Becker DP. Real Time Laser-Doppler Perfusion Imaging of Experimental Traumatic Brain Injury in Rats. American Association of Neurological Surgeons Annual Meeting, Toronto, Ontario, Canada, April 21-26, 2001.
52. Glenn TC, Vespa PA, Kelly DF, Oertel M, Boscardin J, Matharu S, **Hovda DA**, Martin NA. Does Lactate Uptake Occur in Human Brain Following Traumatic Brain Injury? Evidence from a Modified Kety-Schmidt Technique. American Association of Neurological Surgeons Annual Meeting, Toronto, Ontario, Canada, April 21-26, 2001.
53. Glenn TC, Vespa PA, Kelly DF, Oertel M, Boscardin J, Matharu S, **Hovda DA**, Martin NA. Confirmation of Cerebral Hyperglycolysis Following Human Traumatic Brain Injury as Demonstrated by a Modified Kety-Schmidt Method. American Association of Neurological Surgeons Annual Meeting, Toronto, Ontario, Canada, April 21-26, 2001.
54. Giza CC, Lee SM, Kremen TJ, **Hovda DA**, Becker DP. Concussion in the Developing Rat Triggers NMDA Receptor Dysfunction by Altering Subunit Composition in Cortex and Hippocampus. American Association of Neurological Surgeons Annual Meeting, Toronto, Ontario, Canada, April 21-26, 2001.
55. Li HH, Lee SM, **Hovda DA**, Ying ZL, Gomez-Pinilla F. Up-Regulation of Genes Related to Synaptic Plasticity in Rats Exposed to Music Revealed by Microarray. Society for Neuroscience 31<sup>st</sup> Annual Meeting, San Diego, CA, November 10-15, 2001
56. **Hovda DA**. Effects of TBI: Biomechanics and Pathophysiology. State of New Mexico's Aging and Long-Term Services Department, On-Line and DVD Continuing Medical Education course entitled "The Silent Epidemic: Mild Traumatic Brain Injury: Part 1: Identification and Diagnosis", August 14, 2008
57. **Hovda DA**. What's so mild about mild traumatic brain injury? UCLA Department of

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Neuropsychology Seminar Series, March 18, 2010

58. **Hovda DA.** Metabolic Dysfunction after Traumatic Brain Injury. Department of Defense TBI Grand Rounds (Teleconference), December 18, 2013
59. **Hovda DA.** The Neurobiology of Concussion and the Consequences of Repeat Injury. Defense and Veterans Brain Injury Center (Webinar), January 16, 2014

***CHAIRMAN OF SCIENTIFIC SESSIONS FOR PROFESSIONAL SOCIETIES AND MEETINGS***

1. "Head Injury"; 8th International Symposium on Intracranial Pressure, ICP and Craniospinal Dynamics, Rotterdam, The Netherlands, June 19, 1991.
2. "Clinical Outcome Measures"; The 1st International Neurotrauma Symposium, Fukushima City, Fukushima Japan, May 17, 1991.
3. "Trauma". Annual Meeting for the Society for Neuroscience, Anaheim, California, October 29, 1992.
4. "Imaging". 9th International Symposium on Intracranial Pressure; ICP And Its Related Problems, Nagoya, Japan; Chairman of Session O-14, May 16-19, 1994.
5. "Remote Mechanisms of Cellular Dysfunction". 6th Annual Spring Brain Conference, Sedona, Arizona, March 1-5, 1995.
6. 3rd International Neurotrauma Symposium, Toronto, Ontario, Canada, Chairman of the Workshop: Pharmacological Treatment of Experimental Head Injury, July 22-37, 1995.
7. "Imaging Strategies in Clinical and Preclinical TBI; Involvement of Blood Brain Barrier in TBI". Astra Corporation, Anaheim, CA, February 10, 1997.
8. "Open Communications". 17th Annual National Neurotrauma Symposium, Miami Beach, Florida, October 22-23, 1999.
9. "The University of California Neurotrauma Research Initiative", The Inaugural University of California Neurotrauma Meeting, Quail Lodge, Carmel, CA, August 1-3, 2000
10. "How Relevant are our Models?" 18th Annual National Neurotrauma Symposium, New Orleans, LA, November 3-4, 2000.
11. 2<sup>nd</sup> Annual University of California Neurotrauma Symposium, Ojai Valley Inn, Ojai, CA, August 8-10, 2001
12. "Patient Presentation" 19th Annual National Neurotrauma Symposium, San Diego, CA, November 9-10, 2001.
13. 3<sup>rd</sup> Annual University of California Neurotrauma Symposium, Silverado Resort, Napa Valley, CA, August 7-9, 2002

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14. 4<sup>th</sup> Annual University of California Neurotrauma Symposium, Hilton La Jolla Torrey Pines, La Jolla, CA, August 20-22, 2003
15. 5<sup>th</sup> Annual University of California Neurotrauma Symposium, Quail Lodge, Carmel, CA, August 18-20, 2004
16. 6<sup>th</sup> Annual University of California Neurotrauma Symposium, Ojai Valley Inn, Ojai, CA, August 10-12, 2005
17. 7<sup>th</sup> Annual University of California Neurotrauma Symposium, Quail Lodge, Carmel, CA, August 2-4, 2006
18. 8<sup>th</sup> Annual University of California Neurotrauma Symposium, Fess Parker's DoubleTree Resort, Santa Barbara, CA, September 23-25, 2007
19. 9<sup>th</sup> Annual University of California Neurotrauma Symposium, Quail Lodge, Carmel, CA, June 23-25, 2008
20. 2<sup>nd</sup> Joint Symposium of the International and National Neurotrauma Societies, Fess Parker's DoubleTree Resort, Santa Barbara, CA, September 7-11, 2009
21. 11<sup>th</sup> Annual University of California Neurotrauma Symposium, Toll House, Los Gatos, CA, August 22-24, 2010
22. 12<sup>th</sup> Annual University of California Neurotrauma Symposium, Fess Parker's DoubleTree Resort, Santa Barbara, CA, September 25-27, 2011
23. 13<sup>th</sup> Annual University of California Neurotrauma Symposium, DoubleTree by Hilton Sonoma Wine Country, Rohnert Park, CA, September 9-11, 2012
24. 14<sup>th</sup> Annual University of California Neurotrauma Symposium, Fess parker's DoubleTree Resort, Santa Barbara, CA, September 22-24, 2013
25. 15<sup>th</sup> Annual University of California Neurotrauma Symposium, Quail Lodge, Carmel, CA, September 14-16, 2014

***INVITED LECTURES, VISITING PROFESSORSHIPS, SEMINARS AND COLLOQUIUMS;  
INVITED AS FACULTY FOR NATIONAL AND INTERNATIONAL SYMPOSIUMS***

1. *Recovery of Function After Brain Injury*, University of New Mexico, Albuquerque, NM, April 23, 1985
2. *The Neuroscience of Psychiatry*. Memorial Hospital, Albuquerque, NM, May 6, 1986
3. *Neonatal cerebral hemispherectomy blocks development of binocular depth perception in cat*. Neuropsychiatric Institute, UCLA, Los Angeles, CA, June 12, 1986
4. *Recovery of function following brain injury: Studies of diaschisis*. Department of Neurosurgery, School of Medicine, UCLA, Los Angeles, CA, June 10, 1987

5. *Metabolic maturation of the brain: A study of local cerebral glucose utilization in the cat.* Neuropsychiatric Institute, UCLA, Los Angeles, CA, June 11, 1987
6. *Recovery of function following neonatal and adult cerebral hemispherectomy in the cat: Anatomical and behavioral measures.* Department of Zoology, Arizona State University, Phoenix, AZ, February 10, 1988
7. *Metabolic studies of brain maturation and plasticity in the cat.* Department of Neurology, UCLA, Los Angeles, CA, December 7, 1988
8. *Reorganization of brain anatomy and behavior after neonatal or adult cerebral hemispherectomy. II. Visual System.* Jules Stein Eye Institute, UCLA, Los Angeles, CA, December 16, 1988
9. *Sparing of visual field perception following neonatal cerebral hemispherectomy in the cat.* Mental Retardation Research Center Annual Conference, Arrowhead, CA, October 21, 1989
10. *Metabolic and anatomical aspects of recovery of function following brain injury.* Neuroscience Grand Rounds, UCLA, Los Angeles, CA, March 7, 1990
11. *Ionic flux and metabolic demands affect recovery following traumatic brain injury.* University of New Mexico School of Medicine, Albuquerque, NM, March 23, 1990
12. *Pharmacological treatment of head injury.* New Medico Community Re-Entry Center, Apple Valley, CA. July 11, 1990
13. *Biochemistry of brain injury.* UCLA Harbor Neurology Grand Rounds, Los Angeles, CA, August 24, 1990
14. *Metabolism and recovery of function following brain injury: Effects of ionic flux and age-at-lesion.* Theoretical and Experimental Basis for Pharmacological and Rehabilitation Strategies. CNR Research Institute, Indianapolis, IN, October 24-26, 1990
15. *Surgical Approaches to the Skull Base, "Anatomical Review".* UCLA School of Medicine, Los Angeles, CA, September 12, 1991
16. *Cerebral metabolism following hemispherectomy: A Reflection of Neuroplasticity.* UCLA Mental Retardation Research Center, Annual Conference, Arrowhead, CA, October 13, 1991
17. *Metabolic derangements in the injured brain.* Daniel Freeman Memorial Hospital, Los Angeles, CA, October 15, 1991
18. *Investigational aspects of brain trauma.* III International Course on Clinical Neurosurgery, Krankenhaus Nordstadt, Hannover Germany, December 6, 1991
19. *Brain trauma - biochemical consequences and pharmacological implications.* 3<sup>rd</sup> International Course on Clinical Neurosurgery, "Brain Injury", Neurochirurgische Klinik, Krankenhaus Nordstadt, Hannover, Germany, December 10, 1991

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20. *The neurochemical and neurometabolic consequence of brain injury*. Department of Neurosurgery, Nihon University, School of Medicine, Tokyo, Japan, February 6, 1992
21. *Computational Technologies for Substitution of Impaired Brain Function*. International Workshop on Neurobionics, Goslar, Germany, February 28 - March 1, 1992
22. *The neurochemical and neurometabolic consequence of brain injury*. NEUREX Corporation, Menlo Park, CA, March 4, 1992
23. *Pharmacology of cerebral protection*. The Southern California Neurosurgical Society, Santa Monica, CA, March 11, 1992
24. *The neurochemical and neurometabolic consequence of traumatic brain injury*. The University of Kansas Medical Center, Kansas City, KS, April 3, 1992
25. *Workshop on Animal Models of Traumatic Brain Injury (TBI)*. Richmond, VA, April 8, 1992
26. *1<sup>st</sup> International Skull Base Congress*. Hannover, Germany, June 14-20, 1992
27. *Cerebral metabolism: A reflection of neural plasticity*. 10th Anniversary of the Queen Reina Sofia Award for Medical Science. Madrid, Spain, October 19, 1992
28. *Sparing of neurobehavioral function following neonatal, compared to adult cerebral hemispherectomy*. Department of Neurology, UCLA School of Medicine, Los Angeles, CA, December 7, 1992
29. *Trauma Session*. Brain Edema 1993, The 9<sup>th</sup> International Symposium. Tokyo, Japan, May 16-29, 1993
30. *Experimental Research: State of the Art*. 6th International Course on Clinical Neurosurgery, Hannover, Germany, June 5, 1993
31. *Matching Models to Man: Which Models in the 1990's?* 2<sup>nd</sup> International Neurotrauma Symposium. Glasgow, Scotland, July 4-9, 1993
32. *Ionic flux and metabolic dysfunction following traumatic brain injury: A period of cellular vulnerability*. 3rd Annual Meeting of the International Association for the Study of Traumatic Brain Injury (IASTBI), Tokyo, Japan, September 8-11, 1993
33. *The Animal Research Committee - A Faculty and Administrative Perspective*. Animal Care and Use Symposium, UCLA School of Medicine, Los Angeles CA, October 12, 1993
34. *Metabolic dysfunction following traumatic brain injury*. 11th Annual Neurotrauma Symposium, Washington, DC, November 6, 1993
35. *Neural Trauma*. UCLA Clinical Neuroscience Grand Rounds, UCLA, Los Angeles, CA, February 16, 1994
36. *Neurochemical changes after traumatic brain injury*. 1994 Center Symposium, Center for

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Network Neuroscience, University of North Texas, Denton, TX, March 11, 1994

37. *Neonatal vs. adult cerebral hemispherectomy: Recovery of Function*. 16th International Symposium: Development and Plasticity of the Visual System, Montreal, Canada, May 10, 1994
38. *Cerebral Microdialysis: Moving from Animal to Man*. The International Symposium on Neurochemical Brain Monitoring, Tokyo, Japan, May 21, 1994
39. *Metabolic Dysfunction Following Brain Injury*. Dental Research Institute Seminar, UCLA, Los Angeles CA, October 18, 1994
40. *Mechanisms of brain damage and opportunities for Neuroprotection in patients with head injury*, Neuroprotection Meeting, Medical College of Virginia, Virginia Commonwealth University, Richmond, VA, November 2-4, 1994
41. *Basic and Clinical Head Injury Research: New Directions and Implications for Treatment*, School of Medicine, University of California, Irvine, CA, November 23, 1994
42. *Basic Neurochemical and Neurometabolic Consequences of Traumatic Brain Injury*, Annual Neurosurgical Symposium: Neurosurgical Emergencies, The Huntington Library, San Marino, CA, May 3, 1995
43. *The Neurochemical and Neurometabolic Cascade Following Traumatic Brain Injury: Implications for Recovery of Function*, Department of Physiology, University of New Mexico, Albuquerque, NM, May 11, 1995
44. *What is a Psychologist doing in Neurosurgery?*, Department of Psychology, University of New Mexico, Albuquerque, NM, May 12, 1995
45. *Head Injury in Sports*, Sports Lawyers Association Conference, Boston, MA, May 18-20, 1995
46. *Neurochemical and Metabolic Response to Brain Injury*, The Department of Molecular and Medical Pharmacology, UCLA, Los Angeles, CA, October 4, 1995
47. *Clinical Metabolic and Neurochemical Update*, The Neurotrauma Society Annual Meeting, San Diego, CA, November 11, 1995
48. *Metabolic and Blood Flow Studies in Brain Injury: Linking Laboratory to Bedside*, The 1996 Advances in Acute Neurotrauma Conference, University of Pennsylvania, Philadelphia, PA, January 20, 1996
49. *Uncoupling of Glucose and Oxidative Metabolism: The Cellular Pathophysiology of Brain Injury*, 1st Conference on Cerebral Oxygenation, Erasmus University, Rotterdam, the Netherlands, February 24, 1996
50. *Injury-Induced Metabolic Uncoupling: Basic and Clinical Evidence for Defining Vulnerability, Pathophysiology of Secondary Brain Injury and Implications for Contemporary Treatment*, University of Pittsburgh Medical Center, Pittsburgh, PA, May 17-18, 1996



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51. *Clinical and Laboratory Studies of Disturbances in Cerebral Blood Flow and Metabolism Coupling Following Traumatic Brain Injury*, 14th Annual Neurotrauma Symposium, Washington, DC, November 15-16, 1996
52. *Vascular and Metabolic Changes Following Traumatic Brain Injury*. 14th Annual Neurotrauma Symposium, Washington, DC, November 15-16, 1996
53. *Pharmacology of Head Injury*, Department of Molecular and Medical Pharmacology, UCLA, Los Angeles, CA, November 27, 1996
54. *Recovery of Function*, Biomedical Physics Interdepartmental Graduate Program, UCLA, Los Angeles, CA, December 5, 1996
55. *Recent Developments in Head Trauma Research*, National Science Teacher's Association Conference, San Francisco, CA, December 28, 1996
56. *Mechanisms of Traumatic Brain Injury: Lessons from the Animal Family*. Society of Critical Care Medicine's 26th Educational & Scientific Symposium, San Diego, CA, February 8, 1997
57. *Cerebral Blood Flow and Metabolism: Influence on pathology, outcome, and therapeutic strategy*, Astra Corporation, Anaheim, CA, February 10, 1997
58. *Metabolic Dysfunction Following Traumatic Brain Injury*, The Blood-Brain Barrier Conference, UCLA, Los Angeles, CA, February 12, 1997
59. *Head Injuries: Fact and Fiction*, American Medical Society for Sports Medicine 6th Annual National Meeting, Colorado Springs, CO, April 5-9, 1997
60. *Cerebral Blood Flow and Metabolism Following Traumatic Brain Injury*, Joint Section on Neurotrauma and Critical Care, 65th Annual Meeting of The American Association of Neurological Surgeons Denver, CO, April 12-17, 1997
61. *Microdialysis and PET*, 2nd International Symposium on Clinical Microdialysis, Uppsala, Sweden, April 23-25, 1997
62. *Pathophysiology of Concussive Injury*, World Boxing Council, First Medical World Boxing Congress, "Facing the 21<sup>st</sup> Century," Aruba, Mexico, April 30-May 4, 1997
63. *Hyperglycolysis and Brain Injury*, Allegheny University Department of Neurosurgery Conference, Allegheny University of the Health Sciences, Philadelphia, PA, August 5, 1997
64. *Metabolic Dysfunction Following Traumatic Brain Injury: Reflections of Vulnerability in Recovery of Function*, University of California, San Diego, Division of Neurological Surgery Grand Rounds, San Diego, CA, Thursday, August 20, 1997
65. *Secondary Injury and Acidosis*. 4<sup>th</sup> International Neurotrauma Symposium. Seoul, Korea, August 23-28, 1997
66. *Cerebral Hyperglycolysis Following Severe Traumatic Brain Injury in Humans: A Positron*



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- Emission Tomography Study.* 6th Vienna Shock Forum in association with the European Shock Society, Vienna, Austria, Sunday, November 9, 1997
67. *Neurobiology of Traumatic Brain injury.* Harbor-UCLA Medical Center, Pediatric Critical Care Group, Torrance, CA, November 20, 1997
  68. *Introduction of the Revised AC-2 Form.* UCLA Chancellor's Animal Research Committee (ARC), Office for Protection of Research Subjects (OPRS), Training and Information Workshop, Los Angeles, CA, November 25, 1997
  69. *Transition from Preclinical to Clinical Trials.* Brain Injury Association on Clinical Trials. University of Virginia, December 5-7, 1997
  70. *Metabolic Dysfunction.* The American Orthopaedic Society for Sports Medicine Head Injury Workshop, Chicago, IL, December 10-12, 1997
  71. *The Metabolic Basis of Concussion.* Sports Related Concussion Conference, Orlando, FL, March 6-9, 1998
  72. *The Neuroscience of Neurosurgery.* Gurdjian Lecture Series, Wayne State University, Detroit, MI, May 12-13, 1998
  73. *The Pathobiology of Traumatic Brain Injury: Relevance to Cellular Vulnerability.* Gurdjian Lecture Series, Wayne State University, Detroit, MI, May 12-13, 1998
  74. *Neurophysiology of MTBI.* National Football League Physicians Conference, MTBI and Cervical Spine Conferences, Essex House, New York, NY, August 18, 1998
  75. *Neurophysiology of MTBI.* National Football League Physicians Conference, MTBI and Cervical Spine Conferences, Arizona Biltmore, Phoenix, AZ, August 25, 1998
  76. *The Neurobiology of Concussion: Vulnerability and Secondary Risks.* 4<sup>th</sup> Detroit Neurosurgery Symposium, Neural Injury: Advanced Brain Life Support. Atheneum Suite Hotel and Convention Center, Detroit, MI, November 12-15, 1998
  77. *Neurobiology of Traumatic Head Injury: From the Laboratory to the Clinic,* The Robert and Phyllis Levitt Department of Neuroscience and the University of Florida Brain Institute Seminar, Gainesville, FL, December 11, 1998
  78. *The Neurobiology of Concussion.* UCLA Sports Medicine Conference Series, UCLA Medical Plaza, Los Angeles, CA, March 3, 1999
  79. *Pathobiology of Traumatic Brain Injury.* Kaiser Permanente, CME Program, Woodland Hills, CA, March 10, 1999
  80. *Physiological Impact of Mild Concussion.* Sixth Annual Conference on Neurobehavioral Rehabilitation for Acquired Brain Injury, Acquired Brain Injury Program, Hamilton Health Sciences Corporation, Hamilton, Ontario Canada, May 6-7, 1999

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81. *Mild Traumatic Brain Injury: Effects on Cerebral Development and Plasticity*. Sixth Annual Conference on Neurobehavioral Rehabilitation for Acquired Brain Injury, Acquired Brain Injury Program, Hamilton Health Sciences Corporation, Hamilton, Ontario Canada, May 6-7, 1999
82. *Pathophysiology of Concussion: Effects of Concussion on the Brain*. Sports Head Injury Symposium 1999, West Coast Sports Medicine Foundation, Westwood, CA, June 12, 1999
83. *Mild Traumatic Brain Injury: Effect on Neuroplasticity and Development*. The American Orthopaedic Society for Sports Medicine Head Injury Workshop, Traverse City, MI, June 20-22, 1999
84. *Mechanisms of Head Injury*, The American Orthopaedic Society for Sports Medicine Head Injury Workshop, Traverse City, MI, June 20-22, 1999
85. *Traumatic Brain Injury and Metabolic Diaschisis: Implications for Secondary Injury*, University of Pittsburgh Brain Research Center, Department of Neurosurgery, Pittsburgh, PA, July 14, 1999
86. *Traumatic Brain Injury: Pathobiology and Effects on Long Term Plasticity*. University of Virginia, Department of Neurosurgery, Charlottesville, VA, October 29, 1999
87. *Traumatic Brain Injury: How Sweet it is*. UCLA Department of Surgery Grand Rounds, UCLA School of Medicine, Los Angeles, CA, January 26, 2000
88. *Cerebrovascular Disease, Interactive Discussion*. 22<sup>nd</sup> Princeton Conference on Cerebrovascular Disease. Hotel Sofitel, Redwood City, CA, March 10-12, 2000
89. *Traumatic Brain Injury: How Sweet it is*. University of Texas, Houston, Department of Neurobiology and Anatomy Grand Rounds, University of Texas, Houston Health Science Center, Houston, TX, April 7, 2000
90. *Introduction to the UCLA Brain Injury Research Center*, The Inaugural University of California Neurotrauma Meeting, Quail Lodge, Carmel, CA, August 1-3, 2000
91. *Head Trauma*, West Los Angeles Veteran's Administration Hospital Grand Rounds, West Los Angeles, CA, August 11, 2000
92. *Function and Derangements of the Cerebral Energy Metabolism in Brain Injury*. 5<sup>th</sup> International Neurotrauma Symposium, Garmisch, Germany, October 1-5, 2000
93. *Sports and Head Injury in Children*. Child Neurology Society Meeting, St. Louis, MO, October 25-28, 2000
94. *Metabolic Dysfunction Following CNS Trauma*, Neural Repair Course, UCLA, Los Angeles, CA, February 26, 2001
95. *Acute Pathophysiology Following Traumatic Brain Injury in Animals and Humans*. 12<sup>th</sup> Annual Spring Brain Conference, Sedona, AZ, March 7-11, 2001
96. *The Pathophysiology of Traumatic Brain Injury: Cellular Vulnerability and Plasticity*. Medical

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College of Virginia, Department of Neurosurgery, Richmond, VA, April 10-12, 2001

97. *Imaging the Neurobiology of TBI: PET Studies in Animal and Man*. Temple University Neurotrauma Research Lab Seminar Series, Philadelphia, PA, May 10-11, 2001
98. *The Metabolic Cascade of Traumatic Brain Injury: Reflections on Cellular Vulnerability and Plasticity*. International Trauma Anesthesia and Critical Care Society Meeting, San Diego, CA, May 17-19, 2001
99. *Cellular Energy Crisis Following Traumatic Brain Injury: Reflections on Cellular Vulnerability and Plasticity*. University of Kentucky Medical Center, Spinal Cord and Brain Injury Research Center Seminar, Lexington, KY, May 20-22, 2001
100. *The Cellular Response to Traumatic Brain Injury: Basic and Clinical Update*. University of Tennessee Health Science Center, Departments of Neurosurgery and of Anatomy and Neurobiology, Memphis, TN, May 25, 2001
101. *Imaging the Pathobiology of Mild Traumatic Brain Injury*. American College of Sports Medicine Conference, Baltimore, MD, May 30-June 1, 2001
102. *Cerebral Metabolic Crisis Following Traumatic Brain Injury*. Brain 01, Taipei, Taiwan, June 9-13, 2001
103. *The Brain's Response to Injury: Biomechanics and Biology: Animal Studies*. Neuropsychological Consequences of Head Impact in Youth Soccer, Washington, DC, October 12, 2001
104. *It Was Just a Bump on the Head*. Social Services Administration, County of Orange, CA, November 6, 2001
105. *Energy Crisis After Traumatic Brain Injury: Reflections of Cellular Vulnerability and Dysfunction*. Loma Linda University, Loma Linda, CA, December 19, 2001
106. *Energy Crisis after Traumatic Brain Injury*. Amgen, Thousand Oaks, CA, January 8, 2002
107. *Energy Crisis in Traumatic Brain Injury*. UCLA, Los Angeles, CA, January 27, 2002
108. *What is Needed to Validate/Refine Animal Models of TBI*. NINDS Brain Banking Workshop, Bethesda, MD, March 11 & 12, 2002
109. *Imaging the Pathobiology of Traumatic Brain Injury*. Lawrence Berkeley National Laboratories, Berkeley, CA, June 4, 2002
110. *Imaging the Neurobiology of Traumatic Brain Injury*. University of New Mexico, Albuquerque, NM, June 14 & 15, 2002
111. *The Pathophysiology of Traumatic Brain Injury: Imaging Cellular Vulnerability and Recovery of Function*. Children's Hospital & Research Center at Oakland, Oakland, CA, August 6, 2002

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112. *Mild Traumatic Brain Injury*. 1<sup>st</sup> Joint Symposium of the National and International Neurotrauma Societies. Tampa, FL, October 26-31, 2002
113. *The Cerebral Energy of Recovery from Traumatic Brain Injury*. Center for Traumatic Brain Injury Studies and the Comprehensive Center for Pain Research at the University of Florida, February 28, 2003
114. *Innovative Concepts in Traumatic Brain Injury: Neurobiological and Neurobehavioral Aspects*. Walter Reed Institute for Post Graduate Study in Neurobehavior, Spring 2003 Conference, at Walter Reed Army Medical Center, Washington, DC, April 30 & May 1, 2003
115. *Concussion and Cerebral Energy Failure*. American Osteopathic Academy of Sports Medicine 18<sup>th</sup> Annual Clinical Conference. San Diego, CA, April 30–May 3, 2003
116. *Traumatic Brain Injury Early in Life: Cerebral Energy, Metabolism and the Subsequent Effects on Neuroplasticity*. National Children's Study Workshop, Bethesda, MD, September 11 & 12, 2003
117. *Concussion in the Developing Brain: The Cost to Neuroplasticity*. 23<sup>rd</sup> Annual National Academy of Neuropsychology Conference. Dallas, TX, October 15-18, 2003
118. *Metabolic Crisis Following Traumatic Brain Injury*. 12<sup>th</sup> Annual Meeting of the Rachidian Society, Kona, HI, February 22 – 26, 2004.
119. *Mild Traumatic Brain Injury Reduces the Capacity for Experience Dependent Plasticity in the Developing Rat*. 12<sup>th</sup> Annual Meeting of the Rachidian Society, Kona, HI, February 22–26, 2004.
120. *Metabolic Crisis Following Traumatic Brain Injury*. 15<sup>th</sup> Annual Spring Brain Conference, Sedona, AZ, March 10-13, 2004.
121. *Metabolic Crisis Following Traumatic Brain Injury*. 27<sup>th</sup> Annual Meeting of the Japan Society of Neurotraumatology. Tokyo, Japan, March 26, 2004
122. *Post-Traumatic Cerebral Metabolic Dysfunction and Its Impact on Neuronal Plasticity*. Neural Repair Seminar, University of California, Los Angeles, CA, April 2, 2004.
123. *Alterations in Brain Energy Metabolism Following TBI*. Grand Rounds, University of California, Davis, CA, April 14, 2004.
124. *Metabolic Crisis Following Traumatic Brain Injury. An Introduction to Metabolic Therapy*. Neurological PET: Expanding Neurology Workshop, Arlington, VA, April 17, 2004.
125. *Metabolic Therapy for Recovery of Function From Traumatic Brain Injury*. Grand Rounds, University of California, Irvine, CA, May 5, 2004.
126. *Brain Trauma and Ischemia: Similarities and differences*. XV SMART Congress. Milan, Italy, May 12-14, 2004
127. *Energy Crisis and Recovery of Function Following Traumatic Brain Injury*. University of

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Florida, Gainesville, FL, May 24, 2004.

128. *Energy Crisis and Fuel Use After TBI: A New Approach to Metabolic Therapy*. Grand Rounds, Safar Center for Resuscitation Research, University of Pittsburgh, PA, June 2, 2004
129. *The Brain Injured Client: A Primer*. 22<sup>nd</sup> Annual Consumer Attorneys Association of Los Angeles Convention, Las Vegas, NV, August 26-29, 2004
130. *Biological Basis of CNS Trauma and future Directions*. AANS/CNS Section on Pediatric Neurological Surgery Annual Meeting. San Francisco, CA, December 8-11, 2004
131. *Clinical Application of Non-Invasive Imaging Techniques to Study Recovery Following Brain Injury (Quantitative Positron Emission Tomography)*. CVCSN 17<sup>th</sup> Annual Symposium, Virginia Commonwealth University (Medical College of Virginia), Richmond, VA, March 14, 2005
132. *Cerebral Metabolism in Trauma*. 2005 Academy of Molecular Imaging Annual Conference, Orlando, FL, March 19-23, 2005
133. *TBI-Induced Developmental Disability*. University of California, San Francisco, CA, April 12, 2005.
134. *Cerebral Metabolism and TBI*. 6<sup>th</sup> Annual University of California Neurotrauma Meeting, Ojai, CA, August 12, 2005
135. *Challenges for Experience-Dependent Plasticity Following a Traumatic Brain Injury: A Roadblock for Rehabilitation*. Spinal Cord and Brain Injury Neuro-Rehabilitation Symposium and Spinal Cord Injury Association of Kentucky Summit, Lexington, KY, September 30, 2005
136. *The Metabolic Cost of Recovery of Function After Traumatic Brain Injury*. Licht Lecture for the Department of Physical Medicine and Rehabilitation, University of Minnesota, Minneapolis, MN, October 6, 2005
137. *Nonconvulsive Seizures Result in Metabolic Distress After TBI*. 4<sup>th</sup> Meeting of Co-Operative Study on Brain Injury Depolarizations (COSBID), Walter Reed Army Institute of Research, Silver Spring, MD, November 12, 2005
138. *Traumatic Brain Injury and Metabolic Diaschisis*. University of California, Irvine, CA, January 20, 2006
139. *Cerebral Metabolic Diaschisis After Traumatic Brain Injury*. University of Maryland, Baltimore, MD, March 7, 2006
140. *Redefining Cerebral Metabolism Following Traumatic Brain Injury: Translational Research Using Positron Emission Tomography*. The Perot Brain & Nerve Injury Center's Pediatric Brain Injury Symposium, Children's Medical Center of Dallas, TX, March 31, 2006
141. *Recovery of Function after Traumatic Brain Injury in Humans and Rodent Experimental Models: The Role of Energy and Input*. Southern Illinois University, Carbondale, IL, April 21, 2006

142. *The Metabolic Response to Traumatic Brain Injury: Issues of Cellular Vulnerability and Recovery of Function.* American Association of Neurological Surgeons 2006 Congress, San Francisco, CA, April 22–27, 2006
143. *Effect of Environmental Enrichment on Cognitive Function after Early Lesion of the Brain.* University Medical Center, Groningen, The Netherlands, May 11-13, 2006
144. *Plasticity and enriched Environment after Experimental Pediatric TBI: Implications for Treatment and Rehabilitation.* 8<sup>th</sup> International neurotrauma Symposium, Rotterdam, The Netherlands, May 21-25, 2006
145. *Cerebral Metabolic Therapy and Recovery of Function.* 7<sup>th</sup> Annual State of the Art Medical and Rehabilitative Care in Brain Injury: Clinical and Legal Implications Conference, Napa Valley, CA, September 2, 2006
146. *The Cellular Pathophysiology of Concussion.* World Boxing Council 2<sup>nd</sup> Medical Congress, Cancun, Mexico, April 25, 2007
147. *What is so Mild about Mild Traumatic Brain Injury?* California Society of Physical Medicine & Rehabilitation Annual Meeting, Anaheim, CA, May 5, 2007
148. *Biomechanical, Neurobiological, and Behavioral Correlates of Transient Brain Injury.* Society for the Advancement of Brain Analysis, Avalon, Catalina Island, May 20, 2007
149. *Traumatic Brain Injury: A Question of Fuel and Energy.* Grand Rounds, The Veterans' Administration Healthcare System, Los Angeles, CA, June 22, 2007
150. *Traumatic Brain Injury: Medicine for Lawyers.* 25<sup>th</sup> Annual Consumer Attorneys Association of Los Angeles Convention, Las Vegas, NV, September 6-9, 2007
151. *Neurobiology of Traumatic Brain Injury Sustained During Cerebral Development.* New Frontiers in Pediatric Traumatic Brain Injury, San Diego, CA, November 8-10, 2007
152. *What's so Mild about Mild Traumatic Brain Injury?* 8<sup>th</sup> Annual State of the Art Medical and Rehabilitative Care in Brain Injury: Clinical and Legal Implications Conference, Napa Valley, CA, November 16-17, 2007
153. *The Neurobiology of Traumatic Brain Injury: Neuropathology and Recovery of Function.* Grand Rounds, Dept. of Pathology, University of New Mexico, Albuquerque, NM, December 13, 2007
154. *Neurobiology of Traumatic Brain Injury.* AIMBE TATRC Neurotrauma Bioengineering Meeting, Washington, DC, February 20-22, 2008
155. *The Neurobiology of Traumatic Brain Injury.* University of Hawaii, Honolulu, HI, March 3, 2008
156. *What is so Mild about Mild Traumatic Brain Injury?* Brain Injury Association of America 2008 Brain Injury Litigation Strategies Conference, Las Vegas, NV, April 4, 2008



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157. *Advances in Understanding the Pathobiology of Concussion*. Sports Concussion Summit, Marina del Rey, CA, April 18, 2008
158. *Pathophysiology and Treatment of Traumatic Brain Injury*. Brain Injuries Conference, Seattle, WA, May 5-7, 2008
159. *Flow and Metabolism in the Acute Phase after TBI: Is the Brain in Shock?* International Shock Congress-2008, Cologne, Germany, June 28-July 2, 2008
160. *Pathophysiology of mTBI*. New Developments in Sports-Related Concussion Conference, Pittsburgh, PA, July 24-25, 2008
161. *Metabolic Management of Traumatic Brain Injury: Current Status and Emerging Concepts*. 26<sup>th</sup> Annual National Neurotrauma Symposium, Buena Vista, FL, July 27-30, 2008
162. *Traumatic Brain Injuries: Medicine for Lawyers*. 26<sup>th</sup> Annual Consumer Attorneys Association of Los Angeles Convention, Las Vegas, NV, August 28-31, 2008
163. *Metabolic Management of Traumatic Brain Injury: Current Status and Emerging Concepts to Enhance Recovery of Function*. Dr. Deborah L Warden Lectureship, 2<sup>nd</sup> Annual TBI Military Training Conference, Washington, DC, September 25-26, 2008
164. *PET and Neurochemistry in TBI*. Blast-Related Brain Injury, Imaging for Clinical and Research Applications, St. Louis, MO, October 2-4, 2008
165. *New Research Findings in Understanding the Brain after Mild TBI*. International Conference on Behavioral Health and Traumatic Brain Injury, Paterson, NJ, October 12-15, 2008
166. *Neurometabolic Cascade in Concussion*. Sports Concussion Symposium, 28<sup>th</sup> Annual Conference of the National Academy of Neuropsychology, New York, NY, October 21-25, 2008
167. *The Neurobiology of Mild Traumatic Brain Injury: The Neuroscience of Concussion and the Cost of Neuroplasticity in the Developing Brain*. 28<sup>th</sup> Annual Conference of the National Academy of Neuropsychology, New York, NY, October 21-25, 2008
168. *The Neuroscience of Brain Injury: Future Directions and Hope for the Future*. 28<sup>th</sup> Annual Conference of the National Academy of Neuropsychology, New York, NY, October 21-25, 2008
169. *Head Trauma: What can TBI tell us about ICH?* International Stroke Conference 2009, San Diego, CA, February 18-20, 2009
170. *The Vulnerability of the Developing Brain*. Central Virginia Chapter of the Society for Neuroscience Annual Symposium, Richmond, VA, March 13, 2009
171. *Sugar Coating TBI*. Grand Rounds, Greater Los Angeles VA Medical Center, Los Angeles, CA, March 27, 2009
172. *Biomechanical, Neurobiological and Behavioral Correlates of Transient Brain Injury*. Ochs Labs



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Annual Conference, Los Gatos, CA, April 24-26, 2009

173. *Brain Anatomy*. Brain Injury Association of America 2009 Brain Injury Litigation Strategies Conference, Las Vegas, NV, April 30-May 1, 2009
174. *Concussion Update*. Department of Sports Medicine, David Geffen School of Medicine at UCLA, Los Angeles, CA, May 6, 2009
175. *Advances in the Biology of Traumatic Brain Injury*. National Summit on Concussion and Other Sports Medicine Injuries, Los Angeles, CA, May 15, 2009
176. *Concussion in the Developing Brain: A Cost to Neuroplasticity*. Association for Psychological Science National Convention, San Francisco, CA, May 22-25, 2009
177. *The Neurobiology of TBI: Metabolic Demands and Consequences for Recovery of Function*. Grand Rounds, Department of Psychiatry, David Geffen School of Medicine at UCLA, Los Angeles, CA, November 3, 2009
178. *The Cerebral Metabolic Response to Traumatic Brain Injury: Effects on Neuroplasticity and Recovery of Function*. Department of Neurobiology, A. I. Virtanen Institute for Molecular Sciences, University of Kuopio, Kuopio, Finland, November 12, 2009
179. *Cerebral Metabolic Needs for Recovery of Function*. 10<sup>th</sup> Annual State of the Art Medical and Rehabilitative Care in Brain Injury: Clinical and Legal Implications Conference, Napa Valley, CA, November 20-21, 2009
180. *Novel Next Generation Treatments in TBI*. Neurocritical Care in the ICU of the Future Symposium, University of California, Los Angeles, CA, January 28-29, 2010
181. *The Cerebral Metabolic Response to Traumatic Brain Injury: Effects on Neuroplasticity and Recovery of Function*. Phoenix Children's Hospital, Arizona State University, Phoenix, AZ, February 19, 2010
182. *The Cerebral Metabolic Response to Traumatic Brain Injury: Effects on Neuroplasticity and Recovery of Function*. University of Kentucky, Lexington, KY, March 11, 2010
183. *The Cerebral Metabolic Response to Traumatic Brain Injury: Effects on Neuroplasticity and Recovery of Function*. Brain Injury Litigation Strategies Conference, Brain Injury Association of America, Las Vegas, NV, April 30, 2010
184. *The Neurophysiology of Brain Injury: What Do We Know Today?* Brain Injury Conference, San Antonio, TX, May 1, 2010
185. *Metabolic Changes in the Brain Following Traumatic Brain Injury*. 5<sup>th</sup> Pannonian Symposium on CNS Injury, Pécs, Hungary, May 13-15, 2010
186. *The Cerebral Metabolic Response to Traumatic Brain Injury: Effects on Neuroplasticity and Recovery of Function*, Wayne State University, Detroit, MI, October 28, 2010

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187. *TBI Early in Life: The Cost of Recovery of Function*. California Brain Injury Association Annual State of the Art Medical and Rehabilitative Care in Brain Injury: Clinical and Legal Implications Conference, Napa, CA, November 5, 2010
188. *Translational Research to Develop Effective Therapies for TBI: Current Initiatives from UCLA's Brain Injury Research Center (BIRC)*. Battlefield Healthcare Series Summit, San Antonio, TX, December 6, 2010
189. *Translational Research in Traumatic Brain Injury*. ICU of the Future, University of California, Los Angeles, CA, January 20, 2011
190. *The Pathophysiology of Mild Traumatic Brain Injury*. Challenges and Controversies in Research, Toronto Rehabilitation Institute, Toronto, Ontario, Canada, February 4, 2011
191. *Clinical Relevance of Pathophysiology following mTBI*. Challenges and Controversies in Research, Toronto Rehabilitation Institute, Toronto, Ontario, Canada, February 4, 2011
192. *The Neurobiology of Traumatic Brain Injury: Implications for Rehabilitation Medicine*. The Mark P. Clio MD Lectureship, Craig Hospital, Englewood, CO, February 25, 2011
193. *The Neurophysiology of Brain Injury: What do we know today?* (Keynote) From Concussion and Coma to Community, XIX Annual Providers' Conference, Brain Injury Association of Iowa, Des Moines, IA, March 10, 2011
194. *The Neurophysiology of Brain Injury: Applications for the Clinician*. From Concussion and Coma to Community, XIX Annual Providers' Conference, Brain Injury Association of Iowa, Des Moines, IA, March 10, 2011
195. *Advances in Understanding the Pathobiology of Concussion*. 43<sup>rd</sup> Annual Educational Meeting, American Association of Neuroscience Nurses, Kansas City, MO, March 20, 2011
196. *Altered Brain Metabolism without Ischemia*. 10<sup>th</sup> International Neurotrauma Symposium, Shanghai, China, April 29, 2011
197. *Strategies for Recovery of Function Targeting Neuroanatomical Development and Neurophysiological Function during Chronic Rehabilitation*. 3<sup>rd</sup> Federal Interagency Conference on TBI, Washington, DC, June 15, 2011
198. *Mechanisms of Concussion*. 29<sup>th</sup> Annual National Neurotrauma Symposium, Hollywood Beach, FL, July 13, 2011
199. *The Pathobiology of Sports Concussion*. 12<sup>th</sup> Annual Neuroscience of Brain Injury Conference, Brain Injury Association of America, Napa, CA, November 4, 2011
200. *Neurometabolic Cascade of Traumatic Brain Injury*. Riverside County Public Defender's Office, Riverside, CA, November 18, 2011
201. *Neurobiology of Traumatic Brain Injury Plasticity and Recovery*. 2012 Brain Injury Summit: A Meeting of the Minds, Beaver Creek, CO, January 9-11, 2012

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202. *Neurotrauma – Designing a Novel Treatment*. ICU of the Future, University of California, Los Angeles, January 19, 2012
203. *Neurochemistry of Concussion*. Bridging the Gap: Current Science and Management of Concussion, Baltimore, MD, January 28, 2012
204. *Cerebral Effort in Terms of Traumatic Brain Injury and Recovery of Function*. Gail F. Beach Visiting Lecture, Miami Project to Cure Paralysis, Lois Pope LIFE Center, University of Miami, February 3, 2012.
205. *Metabolic Therapy for TBI*. 2<sup>nd</sup> Annual California Trauma and Resuscitation Conference, San Diego, CA, February 11, 2012
206. *The Neurophysiology of Brain Injury: What Do We Know Today?* New Frontiers in the Translational Science, Clinical Management, and Prevention of Traumatic Brain Injury, Medical College of Wisconsin, May 17, 2012
207. *The Neurometabolic Cascade of Concussion*. Third Biennial Pediatric Neurosciences Conference, Minneapolis, MN, June 1, 2012
208. *Metabolic Dysfunction after Brain Injury*. Concussion in Athletics: From Brain to Behavior, Penn State University Park, State College, PA, October 12, 2012
209. *The Energy Crisis of Traumatic Brain Injury*. Fuller Graduate School of Psychology, Fuller Theological Seminary, Pasadena, CA, October 29, 2012
210. *The Neuroscience of Traumatic Brain Injury*. 169<sup>th</sup> Annual Society of Clinical Surgery Meeting, University of California, Los Angeles, CA, November 2, 2012
211. *Pathophysiology of Traumatic Brain Injury*. Medical Research Council Trauma Network Workshop, University of Birmingham, Birmingham, England, November 30, 2012
212. *Metabolic Dysfunction after Traumatic Brain Injury*. Grand Rounds, United States Army, Los Angeles, CA, December 18, 2012
213. *The Neurobiology of Mild Traumatic Brain Injury*. 2013 Baseball Medicine Conference, Injury Prevention and Treatment Techniques, Baltimore, MD, January 3, 2013
214. *The Pathophysiology of Mild Traumatic Brain Injury*. Concussion: What You Don't Know CAN Hurt You, Oakland, CA, February 9, 2013
215. *The Neuroscience of Traumatic Brain Injury*. New York Neuropsychology Group Annual Spring Conference, New York, NY, March 9, 2013
216. *Metabolic Signatures of Repair*. Spring Brain Conference, Sedona, AZ, March 21, 2013
217. *Concussion: The Good, the Bad and the Ugly*. American Medical Society for Sports Medicine Annual Meeting, San Diego, CA, April 18, 2013

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218. *Updates and Advances in the Neuroscience of Concussion*. Inaugural Sports Psychology Society Meeting and Symposium, Minneapolis, MN, May 4, 2013
219. *Mild TBI and Mental Health*. US Secretary of Defense Symposium on Traumatic Brain Injury, The Pentagon, Washington, DC, June 12, 2013
220. *The Neurometabolic Cascade of Traumatic Brain Injury*. American Association of Neuropathologists Annual Meeting, Charleston, SC, June 20, 2013
221. *The Cost of Saving the Brain after TBI*. The 6<sup>th</sup> Annual Neuroscience Symposium of the Central Coast, Santa Barbara, CA, October 12, 2013
222. *Blast Injury, Neurotrauma, Cellular Vulnerability and the Cost of Recovery*. 72<sup>nd</sup> Annual Meeting of the Japan Neurosurgical Society, Yokohama, Japan, October 16, 2013
223. *The Neurobiology of Traumatic Brain Injury*. Mission Connect Annual Scientific Symposium, Houston, TX, December 6, 2013
224. *Metabolic Implications of Concussion*. Major League Baseball 2013 Winter Meetings, Orlando, FL, December 7, 2013
225. *Metabolic Management of Brain Injury*. University of Texas Southwestern Medical Center Annual Symposium, Dallas, TX, May 1, 2014
226. *The Neurochemical and Neurometabolic Cascade of TBI and its Effect on Long Term Outcome*. Casa Colina Centers for Rehabilitation, Pomona, CA, September 4, 2014

***PUBLISHED MANUSCRIPTS IN REFEREED JOURNALS***

1. Feeney DM, Hovda DA. Amphetamine and apomorphine restore tactile placing after motor cortex injury in the cat. Psychopharmacology, 79(1):67-71, 1983
2. Walker AE, Feeney, DM, Hovda DA. The electroencephalographic characteristics of the rhombencephalectomized cat. Electroencephalography and Clinical Neurophysiology, 57(2): 156-165, 1984
3. Hovda DA, Feeney DM. Amphetamine with experience promotes recovery of locomotor function after unilateral frontal cortex injury in the cat. Brain Research, 298(2): 358-361, 1984
4. Feeney DM, Hovda DA. Reinstatement of binocular depth perception by amphetamine and visual experience after visual cortex ablation. Brain Research, 342(2): 352-356, 1985
5. Feeney DM, Sutton RL, Boyeson MG, Hovda DA, Dail WG. The locus coeruleus and cerebral metabolism: Recovery of function after cortical injury. Physiological Psychology, 13(3):197-203, 1985
6. Feeney DM, Bailey BY, Boyeson MG, Hovda DA, Sutton RL. The effect of seizures on recovery of function following cortical contusion in the rat. Brain Injury, 1(1):27-32, 1987
7. Hovda DA, Sutton RL, Feeney DM. Recovery of tactile placing after visual cortex ablation in cat: A behavioral and metabolic study of diaschisis. Experimental Neurology, 97(2): 391-402, 1987
8. Villablanca JR, Gómez-Pinilla F, Sonnier BJ, Hovda DA. Bilateral pericruciate cortical innervation of the red nucleus in cats with adult or neonatal cerebral hemispherectomy. Brain Research, 453(1-2): 17-31, 1988
9. Fisher RS, Sutton RL, Hovda DA, Villablanca JR. Corticorubral connections: Ultrastructural evidence for homotypical synaptic reinnervation after developmental deafferentation. Journal of Neuroscience Research, 21(2-4): 438-446, 1988
10. Hovda DA, Villablanca JR. Depth perception in cats after cerebral hemispherectomy: Comparisons between neonatal- and adult-lesioned animals. Behavioural Brain Research, 32(3): 231-240, 1989
11. Teresi LM, Hovda DA, Seeley AB, Nitta K, Lufkin RB. MR imaging of experimental demyelination. American Journal of Roentgenology, 152(6): 1291-1298, 1989
12. Hovda DA, Sutton RL, Feeney DM. Amphetamine-induced recovery of visual cliff performance after bilateral visual cortex ablation in cats: Measurements of depth perception thresholds. Behavioural Neuroscience, 103(3): 574-584, 1989
13. Sutton RL, Hovda DA, Feeney DM. Amphetamine accelerates recovery of locomotor function following bilateral frontal cortex ablation in cats. Behavioural Neuroscience, 103(4): 837-841, 1989
14. Sutton RL, Hovda DA, Feeney DM. Intracerebral chromaffin cell autografts accelerate

- functional recovery in adult cats with unilateral frontal cortex ablation. Brain Dysfunction, 2:201-210, 1989
15. **Hovda DA**, Villablanca JR. Quantitative study of neural degeneration following neonatal or adult cerebral hemispherectomy in cats. I. Retrograde effects in the medial geniculate thalamic nucleus. Brain Dysfunction, 2:221-236, 1989
16. Villablanca JR, **Hovda DA**. Quantitative study of neural degeneration following neonatal or adult cerebral hemispherectomy in cats. II. Transsynaptic effects in the superior colliculus and mammillary nuclei. Brain Dysfunction, 2:237-254, 1989
17. Villablanca JR, Shook BL, **Hovda DA**, Sutton RL. Transplantation of fetal frontal cortex onto degenerating thalamus of cats and kittens. Developmental Neuroscience, 12(1):1-10, 1990
18. **Hovda DA**, Villablanca JR. Sparing of visual field perception in neonatal but not adult cerebral hemispherectomized cats. Relationship with oxidative metabolism of the superior colliculus. Behavioural Brain Research, 37(2):119-132, 1990
19. Katayama Y, Becker DP, Tamura T, **Hovda DA**. Massive increases in extracellular potassium and the indiscriminate release of glutamate following concussive brain injury. Journal of Neurosurgery, 73(6):889-900, 1990
20. Chugani HT, **Hovda DA**, Villablanca JR, Phelps ME, Xu WF. Metabolic maturation of the brain: A study of local cerebral glucose utilization in the developing cat. Journal of Cerebral Blood Flow and Metabolism, 11(1):35-47, 1991
21. Katayama Y, Kawamata T, Tamura T, **Hovda DA**, Becker DP, Tsubokawa T. Calcium-dependent glutamate release concomitant with massive potassium flux during cerebral ischemia in vivo. Brain Research, 558(1):136-140, 1991
22. Yoshino A, **Hovda DA**, Kawamata T, Kayatama Y, Becker DP. Dynamic changes in local cerebral glucose utilization following cerebral concussion in rats: Evidence of a hyper- and subsequent hypometabolic state. Brain Research, 561(1):106-119, 1991
23. **Hovda DA**, Yoshino A, Kawamata T, Katayama Y, Becker DP. Diffuse prolonged depression of cerebral oxidative metabolism following concussive brain injury in the rat: A cytochrome oxidase histochemistry study. Brain Research, 567(1):1-10, 1991
24. Kawamata T, Kayatama Y, **Hovda DA**, Yoshino A, Becker DP. Administration of excitatory amino acid antagonists via microdialysis attenuates the increase in glucose utilization seen following concussive brain injury. Journal of Cerebral Blood Flow and Metabolism, 12(1):12-24, 1992
25. **Hovda DA**, Villablanca JR, Adelson PD. Anatomical and metabolic corticotectal neuroplasticity after neonatal cerebral hemispherectomy: Correlations with visual field sparing. Brain Dysfunction, 5:3-26, 1992
26. **Hovda DA**, Becker DP, Katayama Y. Secondary injury and acidosis. Journal of Neurotrauma, 9(1):S47-S60, 1992



27. **Hovda DA**, Chugani HT, Villablanca JR, Badie B, Sutton RL. Maturation of cerebral oxidative metabolism in the cat: A cytochrome oxidase histochemistry study. Journal of Cerebral Blood Flow and Metabolism, 12(6):1039-1048, 1992
28. Yoshino A, **Hovda DA**, Katayama Y, Kawamata T, Becker DP. Hippocampal CA<sub>3</sub> lesion prevents the postconcussive metabolic dysfunction in CA<sub>1</sub>. Journal of Cerebral Blood Flow and Metabolism, 12(6):996-1006, 1992
29. Doberstein CE, **Hovda DA**, Becker DP. Clinical considerations in the reduction of secondary brain injury. Annals of Emergency Medicine, 22(6):993-997, 1993
30. Fineman I, **Hovda DA**, Smith M, Yoshino A, Becker DP. Concussive brain injury is associated with a prolonged accumulation of calcium: A <sup>45</sup>Ca autoradiography study. Brain Research, 624(1-2):94-102, 1993
31. Villablanca JR, **Hovda DA**, Jackson GF, Gayek R. Neurological and behavioral effects of a unilateral frontal cortical lesions in fetal kittens: I. Brain morphology, movement, posture, and sensorimotor tests. Behavioural Brain Research, 57(1):63-77, 1993
32. Villablanca JR, **Hovda DA**, Jackson GF, Infante, C. Neurological and behavioral effects of a unilateral frontal cortical lesion in fetal kittens: II. Visual system tests, and proposing an "optimal developmental period" for lesion effects. Behavioural Brain Research, 57(1):79-92, 1993
33. Villablanca JR, **Hovda DA**, Harrison JB. Administration of a monosialoganglioside (GM1) failed to enhance recovery of function after cerebral hemispherectomy in neonatal or adult cats. Developmental Brain Dysfunction, 7:211-229, 1994
34. Kawamata T, Katayama Y, **Hovda DA**, Yoshino A, Becker DP. Lactate accumulation following concussive brain injury: The role of ionic fluxes induced by excitatory amino acids. Brain Research, 674:196-204, 1995
35. Loopuijt LD, Villablanca JR, **Hovda DA**. Morphological changes in the thalamus and neocortex of the cat brain after a restricted unilateral prenatal neocortical lesion. Developmental Brain Research, 85:259-272, 1995
36. Adelson PD, **Hovda DA**, Villablanca JR, Tatsukawa K. Development of a crossed corticotectal pathway following cerebral hemispherectomy in cats: A quantitative study on the projecting neurons. Developmental Brain Research, 86:81-93, 1995
37. Martin NA, Doberstein C, Alexander M, Khanna R, Benalcazar H, Alsina G, Zane C, McBride D, Kelly D, **Hovda DA**, Becker D, McArthur D, Zaucha K. Posttraumatic cerebral arterial spasm. Journal of Neurotrauma, 12(5):897-901, 1995
38. **Hovda DA**, Lee SM, Smith ML, von Stück S, Bergsneider M, Kelly D, Shalmon E, Martin N, Caron M, Mazziotta J, Phelps M, Becker DP. The neurochemical and metabolic cascade following brain injury: Moving from animal models to man. Journal of Neurotrauma, 12(5):903-906, 1995



39. Wehby-Grant MC, Olmstead CE, Peacock WJ, **Hovda DA**, Gayek RJ, Fisher RS. Metabolic responses of the neonatal rabbit brain to hydrocephalus and shunting. Pediatric Neurosurgery, 24:79-91, 1996
40. **Hovda DA**, Villablanca JR, Chugani HT, Phelps ME. Cerebral metabolism following neonatal or adult hemineodecortication in Cats: I. Effects on glucose metabolism using [<sup>14</sup>C]2-deoxy-D-glucose autoradiography. Journal of Cerebral Blood Flow and Metabolism, 16:134-146, 1996
41. Gorman LK, Fu K, **Hovda DA**, Murray M, Traystman RJ. Effects of traumatic brain injury on the cholinergic system in the rat. Journal of Neurotrauma, 18(8):457-463, 1996
42. Law MM, **Hovda DA**, Cryer HG. Fluid-percussion brain injury adversely affects control of vascular tone during hemorrhagic shock. Shock, 6(3):213-217, 1996
43. Prins ML, Lee SM, Cheng CLY, Becker DP, **Hovda DA**. Fluid percussion brain injury in the developing and adult rat: a comparative study of mortality, morphology, intracranial pressure and mean arterial blood pressure. Developmental Brain Research, 95:272-282, 1996
44. Kelly DF, Kordestani R, Martin NA, Nguyen T, **Hovda DA**, Bergsneider M, McArthur D, Becker DP. Hyperemia following traumatic brain injury: relationship to intracranial hypertension and outcome. Journal of Neurosurgery, 85:762-771, 1996
45. Bergsneider M, **Hovda DA**, Shalmon E, Kelly DF, Vespa P, Martin NA, Phelps ME, McArthur DL, Caron MJ, Krause JF, Becker DP. Cerebral hyperglycolysis following severe traumatic brain injury in humans: A positron emission tomography study. Journal of Neurosurgery, 86:241-251, 1997
46. Loopuijt LD, Villablanca JR, **Hovda DA**, Huang E, Mancuso S. The effect of neocortical lesions on the number of cells in neonatal or adult feline caudate nucleus: Comparison to fetal lesions. Neuroscience, 77(2):403-418, 1997
47. Kelly DF, Martin NA, Kordestani R, Counelis GJ, **Hovda DA**, Bergsneider M, McBride DQ, Shalmon E, Herman D, Becker DP. Cerebral blood flow as a predictor of outcome following traumatic brain injury. Journal of Neurosurgery, 86:633-641, 1997
48. Kelly DF, Lee SM, Pinanong PA, **Hovda DA**. Paradoxical effects of acute ethanolism in experimental brain injury. Journal of Neurosurgery, 86:876-882, 1997
49. Martin NA, Patwardhan RV, Alexander MJ, Africk CZ, Lee JH, Shalmon E, **Hovda DA**, Becker DP. Characterization of cerebral hemodynamic phases following severe head trauma: hypoperfusion, hyperemia, and vasospasm. Journal of Neurosurgery, 87:9-19, 1997
50. Lee JH, Martin NA, Alsina G, McArthur DL, Zaucha K, **Hovda DA**, Becker DP. Hemodynamically significant cerebral vasospasm and outcome after head injury: A prospective study. Journal of Neurosurgery, 87:221-233, 1997
51. Villablanca JR, Carlson-Kuhta P, Schmanke TD, **Hovda DA**. A critical maturational period of reduced brain vulnerability to developmental injury: I. Behavioral studies in cats.

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# Exhibit 18

**UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF PENNSYLVANIA**

|                                                                                                                                                                                                                                                                      |                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| IN RE: NATIONAL FOOTBALL LEAGUE<br>PLAYERS' CONCUSSION INJURY<br>LITIGATION                                                                                                                                                                                          | No. 2:12-md-02323-AB<br>MDL No. 2323                         |
| Kevin Turner and Shawn Wooden,<br><i>on behalf of themselves and<br/>others similarly situated,</i><br><br>Plaintiffs,<br><br>v.<br><br>National Football League and<br>NFL Properties, LLC,<br>successor-in-interest to<br>NFL Properties, Inc.,<br><br>Defendants. | Hon. Anita B. Brody<br><br>Civil Action No. 2:14-cv-00029-AB |
| THIS DOCUMENT RELATES TO:<br>ALL ACTIONS                                                                                                                                                                                                                             |                                                              |

**DECLARATION OF JOHN G. KEILP, PHD**

JOHN G. KEILP, PhD, hereby declares as follows:

1. I have personal knowledge concerning the matters addressed herein, and submit this declaration in connection with Plaintiffs' motion for approval of the proposed settlement of claims in this litigation. If called as a witness, I could and would testify competently to the facts herein.

**Education, Training, & Experience**

2. I am a Clinical Psychologist and Neuropsychologist. I am a Research Scientist at the New York State Psychiatric Institute, and an Assistant Professor of Clinical Psychology at the Columbia University College of Physicians and Surgeons. I am head of the

Neuropsychology Laboratory in the Division of Molecular Imaging and Neuropathology at the New York State Psychiatric Institute. I have been a licensed psychologist in New York State for twenty-four years, with an independent practice in both clinical and neuropsychological assessment in addition to my research work.

3. I received my PhD in Clinical Psychology from Fordham University in 1990. As part of this training, I completed a two-year integrated internship/fellowship in Clinical Psychology at the New York Hospital/Cornell Medical Center, with my fellowship year concentrated on neuropsychological studies of schizophrenia. I thereafter completed a two-year fellowship in Neuropsychology at the Memorial Sloan-Kettering Cancer Center. I have held faculty positions at the Mount Sinai School of Medicine and Columbia University College of Physicians and Surgeons, as well as adjunct faculty positions at Fordham University, Adelphi University, and Queens College of the City University of New York.

4. I have primarily worked in Clinical Neuropsychological research throughout my career. My research experience encompasses studies of the neuropsychological features of dementia, infectious diseases affecting the central nervous system (i.e. Human Immunodeficiency Virus, Lyme disease), schizophrenia, depression, and suicidal behavior. I have 71 peer-reviewed publications in medical, psychological, and neuropsychological journals. I have been a principal investigator or investigator on 24 grants, from both the National Institutes of Health as well as private foundations. A central feature of my work has been the development of neuropsychological assessment batteries to assess specific aspects of the disorders we have studied. This has involved tailoring clinical batteries and finding appropriate measures to assess the critical deficits in these disorders. This work has provided me with intimate knowledge of the practical considerations of administration of these measures with difficult and impaired



populations, knowledge of the basic psychometric properties of these measures, and knowledge of the statistical issues involved in multi-test evaluations.

5. My earlier research work focused on characterizing neurocognitive changes in patients with dementia, and the relationship of these changes to underlying brain pathology. In one study, correction of current test scores for estimated premorbid ability level was critical to improving the association to underlying deficits in cerebral blood flow (Keilp JG, Prohovnik I. *Intellectual decline predicts the parietal perfusion deficit in Alzheimer's Disease*. Journal of Nuclear Medicine, 1995, 36(8): 1347-1354). In another, normative adjustments of test performance clarified differences in the correlates of different aspects of language performance in patients with dementia (Keilp JG, Gorlyn M, Alexander GA, Stern Y, Prohovnik I. *Cerebral blood flow patterns underlying the differential impairment in category vs. letter fluency in Alzheimer's disease*. Neuropsychologia, 1999, 37: 1251-1261).

6. My current work focuses on characterizing the neurocognitive impairments that accompany disorders—such as depression—that are thought to be primarily behavioral, and on the contributions of neurocognitive impairment to the risk for suicide and suicidal behavior. I published one of the first systematic studies of neurocognitive deficits associated with suicidal behavior (Keilp JG, Sackeim H A, Brodsky B, Oquendo M, Malone K, Sackeim H, Mann JJ. *Neuropsychological dysfunction in depressed suicide attempters*. American Journal of Psychiatry, 2001, 158(5): 735-741) and have an international reputation for this work. More recently, I have contributed to the development of the neuropsychological assessment battery used in the Study to Assess Risk and Resilience in Servicemembers (STARRS), a project funded by the United State Army to evaluate possible neurocognitive risk factors for suicidal behavior in new recruits (Ursano RJ, Stein MB, Heeringa S, Kessler RC, Colpe LJ, Schoenbaum M,

Cersovsky S, Cox K, Aliaga PA, Benedek, DM, Borja, S., Brown GG, Campbell-Sills L, Dempsey CL, Frank R, Fullerton CS, Gebler N, Gifford RK, Gilman SE, Holloway MG, Hurwitz PE, Jain S, Kao TC, Koenen KC, Lewandowski-Romps L, Mash HH, McCarroll JE, McLaughlin KA, Naifeh JA, Nock MK, Raman R, Rose S, Rosellini AJ, Sampson NA, Santiago P, Scanlon M, Smoller J, Thomas ML, Vegella PL, Wassel CL, Zaslavsky AM, Mann J, Oquendo M, Stanley B, Posner K, Keilp J. *The Army Study to Assess Risk and Resilience in Servicemembers (Army STARRS)*. Psychiatry, 2014, 77(2): 107-19). This project, to date, has gathered data on over 51,000 individuals within the first days of their basic training in the army; analyses of these data are currently under way.

7. Additional information on my background and credentials is available on my curriculum vitae, a copy of which is attached to this declaration.

8. The statements and opinions expressed by me in this declaration are mine alone. They do not reflect those of Columbia University, the College of Physicians and Surgeons, or the New York State Psychiatric Institute, nor any of the faculty, staff, or administration of those institutions. All opinions set forth herein I hold to a reasonable degree of scientific certainty.

### **The Brain, Neuropsychological Functioning, and Methods of Assessment**

9. In the last fifty years, we have advanced substantially in our understanding of the close association between the brain and behavior.

10. There are various disciplines that concern themselves with this association, including neurosurgery, neurology, psychiatry, and psychology. As our knowledge of brain/behavior relationships has grown, even disciplines such as economics have begun to incorporate findings from brain sciences to better understand how the information processing

capabilities of the brain may systematically distort information that individuals use to make critical economic decisions.

11. Brain injury can lead to permanent alterations in an individual's ability to think and function on a day-to-day basis. There are also many diseases that affect central nervous system function and have an impact on both the brain and behavior. Progressive, degenerative conditions cause an increasing deterioration of cognitive function over time and can lead to permanent disability. Normal processes such as aging also affect brain function and behavior in systematic ways, and all assessments of functional disability are undertaken in the context of multiple influences on cognitive outcomes.

12. Neuropsychology broadly encompasses any attempt to relate behavior to brain function. The field concerns itself with accurately measuring both behavior and brain function, and our attempts to relate the two. The field of Clinical Neuropsychology places its emphasis on quantifying cognition and behavior, and drawing inferences about underlying pathological processes based on known patterns of cognitive impairment. Clinical Neuropsychology plays a critical role in the characterization of brain dysfunction by evaluating cognitive performance and behavior in a standard, objective, and quantitative manner.

13. For the purposes of our assessments, we typically divide neurocognition into various domains of function, with the understanding that different types of underlying brain pathology can lead to deficits or impairments in distinct domains. These domains of functioning often correspond to the activity in or integrity of specific areas of the brain, or in specific functional circuitry of the brain. For example, Alzheimer's disease in its early stages has its most pronounced effects on memory, and abnormalities of cerebral blood flow and metabolism are typically concentrated in temporal and parietal regions associated with memory functioning.



ways to measure the extent of impairments in retired players using psychometric testing, and objective criteria for defining the compensable impairment levels in retired players. In that regard, together and in collaboration with other medical professionals retained by Plaintiffs, I assisted with the development of the Injury Definitions for Level 1 and Level 2 neurocognitive impairment (and later, Level 1.5 neurocognitive impairment) that form the basis of the Qualifying Diagnoses in the Settlement Agreement. I further assisted in the development of the neuropsychological test battery that was ultimately incorporated into and became the framework for the Baseline Assessment Program (BAP). I am thus intimately familiar with the test battery and the related thresholds for the neurocognitive disorders incorporated in the Injury Definitions.

17. The framework for characterizing impairment was derived from the Neurocognitive Disorders section of the most recent version, the 5<sup>th</sup> revision, of the Diagnostic and Statistical Manual for Mental Disorders (“DSM-5”). This manual characterizes neurocognitive impairment with respect to its nature and severity in a manner that is informed by knowledge about particular disease states and injuries, but not exclusive to any particular disease or injury. As such, it can be used to broadly characterize the level of dysfunction in key neurocognitive domains without respect to specific etiology.

18. The DSM-5 divides neurocognition into six broad domains corresponding to common aspects of everyday cognitive function. The domains are (1) Complex Attention and Processing Speed, (2) Learning and Memory, (3) Executive Function, (4) Language, (5) Visual-Spatial and Visuomotor Function, and (6) Social Cognition.

19. In everyday terms, these domains of function address specific questions about a given patient’s cognitive functioning as follows: (1) Complex Attention and Processing Speed: Is the patient alert and focused, and can they finish tasks in a reasonable amount of time? (2)

Learning and Memory: Can the patient remember things, especially new things they have just been exposed to? (3) Executive Function: Can the patient figure things out, keep things organized, and get them done in an orderly way? (4) Language: Can the patient find the right words when they speak, and understand what people are telling them? (5) Visual-Spatial and Visuomotor Function: Can the patient understand spatial relationships, figure out how to put a puzzle together, or perform rapid, coordinated motor tasks? (6) Social Cognition: Can the patient recognize and respond to social cues, or interact appropriately with other people?

20. With the exception of Social Cognition, these domains of functioning were incorporated into the Injury Definitions for neurocognitive impairments in the Settlement Agreement (at Exhibit 1), and related standardized neuropsychological testing protocol annexed in Exhibit 2 to the Settlement Agreement. Social Cognition was not included given that objective measures of social cognition are less well developed, particularly with respect to the influence of poor effort. Though a Visual-Spatial domain was included in the Injury Definitions and related test battery, motor and visuomotor functioning were deemphasized given the high rate of orthopedic injury and rheumatologic disease in former players, which would distort inferences regarding central nervous system injury that might be made from players' performance on motor tests.

21. In addition to describing domains of functioning, the DSM-5 divides neurocognitive disorders into two levels of severity. These are referred to as "Major" and "Mild" Neurocognitive Disorders, and exist on a spectrum of functional and cognitive impairment. These classifications are further described by a general level of neurocognitive impairment that can be characterized by neuropsychological tests, such that the results of neuropsychological testing can be translated to a severity level in DSM-5 terms. However, the

DSM-5 itself does not provide specific cutoffs for specific tests; rather, it specifies a general level of impairment that must be translated by the clinician for the specific tests administered.

22. Major Neurocognitive Disorders encompass a level of impairment that falls 2.0 or more standard deviations below normative expectations for a given patient. These normative expectations will differ based on a variety of factors, including the patient's age, sex, education level, and premorbid ability level. This level of cognitive impairment, when it extends beyond a single domain of function, corresponds to that commonly associated with the diagnosis of dementia (McKhann GM, Knopman DS, Chertkow H, Hyman BT, Jack CR Jr, Kawas CH, Klunk WE, Koroshetz WJ, Manly JJ, Mayeux R, Mohs RC, Morris JC, Rossor MN, Scheltens P, Carrillo MC, Thies B, Weintraub S, Phelps CH. *The diagnosis of dementia due to Alzheimer's disease: recommendations from the National Institute on Aging-Alzheimer's Association workgroups on diagnostic guidelines for Alzheimer's disease*. *Alzheimers Dement*, 2011, 7(3): 263-9).

23. Mild Neurocognitive Disorders encompass a level of impairment that falls 1-2 standard deviations below normative expectations for a given patient. The spectrum of patient outcomes, functional impact, and progression of impairment in this range is highly variable and often dependent on the underlying etiology of the impairment. Though there is a real decline in cognitive function, many patients remain able to function at a high level personally and professionally notwithstanding detected impairments. For others, the functional impact is manifest and discernable. Though many patients with mild cognitive impairment (approximately 40%) progress to Major Neurocognitive Impairment over the course of their life, the majority do not (Mitchell, AJ & Shiri-Feshki, M. *Rate of progression of mild cognitive impairment to dementia--meta-analysis of 41 robust inception cohort studies*. 2009, *Acta Psychiatrica*



Scandinavica, 2009, 119(4), 252-265). The level of impairment in prior studies of mild cognitive impairment that raises the risk for progression to later dementia falls at approximately 1.5 standard deviations below population norms—the midpoint of the Mild Neurocognitive Disorder range of severity specified by the DSM-5 (Devanand D, Lee J, Luchsinger J, Manly J, Marder K, Mayeux R, Scarmeas N, Schupf N, Stern Y. *Lessons from epidemiologic research about risk factors, modifiers, and progression of late onset Alzheimer's Disease in New York City at Columbia University Medical Center*. Journal of Alzheimer's Disease, 2013, 33 Suppl 1:S447-55.)

24. Levels of impairment in the Injury Definitions for the Settlement Agreement were extended from the principles and framework set forth in DSM-5 Neurocognitive Disorders. In doing so, efforts were made to empirically tie neuropsychometric testing results to various levels of cognitive decline specified by DSM-5, *e.g.*:

**Level 1.0 Neurocognitive Impairment** is characterized descriptively as “a moderate cognitive decline from a previous level of performance”, and is reflected by test performance in two or more cognitive domains at least 1.5 standard deviations below population norms. This level of impairment falls roughly at the 7<sup>th</sup> percentile of the normal population (based on a translation of standard deviation units into percentiles).

**Level 1.5 Neurocognitive Impairment** is characterized descriptively as “a moderate to severe cognitive decline from a previous level of performance”, and is reflected by test performance in two or more cognitive domains at least 1.7-1.8 standard deviations below population norms. This level of impairment falls roughly at the 5<sup>th</sup> percentile of the normal population (based on a translation of standard deviation units into percentiles), and clinically corresponds to early symptoms of dementia

**Level 2.0 Neurocognitive Impairment** is characterized descriptively as “a severe cognitive decline from a previous level of performance”, and is reflected by test performance that falls 2.0 or more standard deviations below population norms. This level of impairment falls roughly at the 2<sup>nd</sup> percentile of the normal population (based on a translation of standard deviation units into percentiles), and clinically corresponds to moderate dementia.

*See* Settlement Agreement, Exhibit 1 at 1-4 (Injury Definitions for Level 1, 1.5, and 2); Exhibit 2 at 5 (Neuropsychological Test Battery, Section 4).

25. Beyond the presence of cognitive impairments detected through neuropsychological testing, the Injury Definitions define other items necessary for each of the Qualifying Diagnoses. In particular, the Injury Definitions require that (a) the retired player or other knowledgeable informant is concerned about cognitive decline in the retired player; (b) the retired player exhibits functional impairment in connection with aspects of his life (personal care, home life, hobbies, and community affairs); and (c) the detected cognitive impairments do not appear exclusively as a result of some acute condition or event (*e.g.*, delirium, acute substance abuse, medication side effects). *See* Settlement Agreement, Exhibit 1 at 1-4 (Injury Definitions for Level 1, 1.5, and 2). These requirements were modeled on the framework for Mild and Major Neurocognitive Disorders from the DSM-5.

26. Under the Settlement, the presence of neurocognitive impairments can be assessed within the framework of the Settlement’s Baseline Assessment Program (BAP), or outside the BAP by qualified physicians using the BAP test battery or other neuropsychological tests to evaluate the relevant cognitive domains and existence of deficits.

27. The neuropsychological test battery developed for the BAP (Settlement Agreement, Exhibit 2) designates specific neuropsychological measures to assess functioning in each of the five domains derived from the DSM-5 and relevant to the Injury Definitions. Multiple measures are used in each domain in order to insure adequate coverage of each domain, and a reliable determination of level of function within each domain. This is a common practice in Clinical Neuropsychology.

28. Measures selected for the BAP test battery are among the most widely used in Clinical Neuropsychology, and are widely available to clinicians throughout the country (Rabin LA, Barr WB, Burton LA. *Assessment practices of clinical neuropsychologists in the United States and Canada: a survey of INS, NAN, and APA Division 40 members*. Archives of Clinical Neuropsychology, 2005, 20(1): 33-65). Measures selected are those with the most extensive normative data, so that accurate determinations of level of impairment can be made uniformly for former players being tested through the BAP.

29. The BAP assessment battery includes measures designed to assess five domains of functioning: (1) Complex Attention and Processing Speed, (2) Learning and Memory, (3) Executive Functioning, (4) Language, and (5) Spatial-Perceptual Functioning. Standard, well-known tests with extensive use in clinical settings and extensive normative data were selected to characterize functioning in each of these domains.

30. Impairment for each neurocognitive injury level was defined empirically based on a specific number of tests within a domain falling below a “cutpoint” indicative of impairment. These cutpoints were selected based on the aggregate likelihood that 7% (for Level 1.0), 5% (for Level 1.5), or 2% (for Level 2.0) of the normal population would have scores falling below that level. (Brooks, BL, Iverson, GL, Holdnack JA. *Understanding and Using Multivariate Base*

*Rates with the WAIS-IV/WMS-IV*, pp 75-102 in J Holdnack, L Drozdick , L Weiss , G Iverson  
WAIS-IV, WMS-IV, and ACS, 2014, New York: Elsevier).

31. Classification at each level was also based on scoring below designated cutpoints in two domains. At least one of these domains was to reflect an impairment in Complex Attention and Processing Speed, Learning and Memory, or Executive Functioning, as these were thought to be the most likely to result from the experience of former players. A combination of impairments in Language and Spatial-Perceptual Functioning without impairment in other domains was thought to be unlikely, given that these are typically associated with injuries on opposite sides of the brain (MD Lezak, Neuropsychological Assessment, 4<sup>th</sup> Edition, 2004, New York: Oxford).

32. Many of the tests selected also have data available regarding the effects of inconsistent effort, or deliberate attempts at deception. Such testing is commonly employed to assess the quality of the effort that the patient provided and to evaluate the validity of the results obtained with a given test battery. Given the compensation setting in which the BAP test battery is being deployed, it is fair and reasonable to do so here.

33. The determination of cognitive impairment in any individual depends on a variety of factors. It is well known, for example, that premorbid ability has a profound effect on the expression of deficits following brain injury or disease. Thus, in attempting to discern the extent of any cognitive impairment in a particular patient, it is standard practice in all neuropsychological assessments to estimate premorbid ability. (Brooks, BL, Iverson, GL, Holdnack JA. *Predicting Premorbid Ability for WAIS-IV, WMS-IV and WASI-II*, pp 217-278 in J Holdnack, L Drozdick , L Weiss , G Iverson WAIS-IV, WMS-IV, and ACS, 2014, New York: Elsevier; Iverson, G. & Brooks, B., *Improving Accuracy for Identifying Cognitive Impairment*,

pp 923-950 in M Schoenberg & J Scott ed. The Little Black Book of Neuropsychology: A Syndrome-Based Approach. 2011, New York: Springer). Accordingly, the BAP test battery not only includes tests of specific neurocognitive functions, but also measures to estimate basic ability level that may have preceded any injuries (premorbid ability level). Empirical data on these effects is available and was used in the construction of the BAP assessments. A key consideration in the construction of cutpoints for impairment was the existence of empirical data on the frequency of low demographically-adjusted scores in different premorbid ability groups. Data tables on the effects of premorbid ability on performance across multiple tests within critical domains in the BAP were obtained from Dr. Grant Iverson, an expert on the effects of premorbid ability on the prevalence of low test scores across a test battery (even when scores are demographically adjusted) (Brooks, BL, Iverson, GL, Holdnack JA. *Understanding and Using Multivariate Base Rates with the WAIS-IV/WMS-IV*, pp 75-102 in J Holdnack, L Drozdick, L Weiss, G Iverson WAIS-IV, WMS-IV, and ACS, 2014, New York: Elsevier). Dr. Iverson, an expert retained by Plaintiffs' Co-Lead Counsel, further consulted in the development of the test battery, construction of cutpoints, and Injury Definitions.

34. The BAP includes supplemental measures of behavioral dysfunction, in the form of both a self-report psychopathology scale (Minnesota Multiphasic Personality Inventory, 2<sup>nd</sup> Edition, Revised Format or "MMPI 2-RF") as well as a structured psychiatric interview (Mini International Neuropsychiatric Interview or "MINI"). Although behavioral disorders are not compensated, they are not penalized. The inclusion of the MMPI 2-RF and MINI, which rely on subjective reports from the particular patient is, in my opinion, a sound decision. Depressive and behavioral disorders can impact cognitive function. Early identification and treatment of such disorders can improve the management of cognitive conditions and overall functioning

prospectively in retired players. For retired players qualifying for Level 1 supplemental benefits under the BAP, obtaining such information can guide further testing and care. In the case of all retired players, these neuropsychiatric measures provide valuable information concerning conditions that are often treatable.

35. The BAP also incorporates consideration of functional impairment outside the realm of cognition alone. To qualify at a specific level of impairment, former players are required to exhibit functional impairment consistent with neurocognitive impairment. The standards used in the construction of these functional impairment criteria are derived from the Clinical Dementia Rating scale (“CDR”; Morris JC. *The clinical dementia rating (CDR): current version and scoring rules*. Neurology, 1993, 43: 2412–2414) a well validated and commonly-used scale for assessing the progression of dementia symptoms (Williams MM, Roe CM, Morris JC. *Stability of the Clinical Dementia Rating, 1979-2007*. Archives of Neurology, 2009, 66(6): 773-7). These functional impairment criteria correspond to the functional impairments typically seen in “Questionable” dementia (CDR level .5 and Level 1.0 Injury Definition in the Settlement scheme), “Mild” dementia (CDR level 1.0 and Level 1.5 Injury Definition in the Settlement scheme), and “Moderate” dementia (CDR level 2.0 and Level 2.0 Injury Definition in the Settlement scheme).

36. I have administered the test battery and applied the thresholds specified under the Settlement Agreement with retired players, and reviewed data from other neuropsychologists who have administered this battery as well. Practically, it performs as intended. Patients with definable neurocognitive impairments are able to tolerate its length and complete it in good order. Moreover, thresholds for determining level of impairment correlate well with the clinical reality and presentation of these patients. Score thresholds correspond with my clinical

experience examining the performance of patients with moderate neurocognitive impairment, early dementia, and moderate to severe dementia. A patient who will satisfy the Level 2 Injury Definition by testing is likely to be diagnosed with moderate dementia. Similarly, a patient who will satisfy the Level 1.5 Injury Definition by testing is most likely to be in the early stages of dementia. In my opinion, practicing neuropsychologists will readily and reliably be able to implement the test battery under the BAP with retired players, using the skill, training, and experience they would employ in their day-to-day clinical practice.

### **Response to Critiques**

37. The BAP and neurocognitive injury definitions have been criticized for not specifically testing living retired players for Chronic Traumatic Encephalopathy (CTE), an emerging neuropathological finding reported from the post-mortem examination of the brains of deceased people, often athletes and veterans. The BAP and neurocognitive injury definitions, however, were not designed to assess any specific neuropathology, but to define a level of impairment consistent with any number of causes. The BAP test battery specifically relies on neurocognitive assessment because neurocognitive impairment is a relevant outcome from the type of injuries at issue in this case, and can be assessed in an objective, quantifiable manner with safeguards against attempts to falsify impairment.

38. Suggestions that CTE can be “diagnosed” based on behavioral symptoms that have a high base rate in former football players (and, in many instances, the general population) are misguided. The science and clinical standards concerning CTE are in their infancy, and have yet to reach acceptance. Although technological improvements in assessing brain pathology may aid the process of characterizing this disorder, substantial additional research is needed to



characterize it. Longitudinal studies to chart its course, prospective and developmental studies to determine the onset of any pathological changes in the brain, and population studies to determine the prevalence of CTE in athletes from other sports as well as non-athletes with repetitive or even single incident head trauma will be needed. In addition, if CTE pathology is progressive and neurocognitive deterioration symptomatically accompanies such progression, the BAP and Injury Definitions are likely to detect these changes with its progression.

39. The BAP test battery and neurocognitive injury definitions have been criticized for not including behavioral disorders in determining compensation. With regard to the assessments themselves, measures of behavioral impairment are included in a self-report measure (MMPI2-RF) and a structured clinical interview (MINI) that are part of the BAP. Both measures include questions on irritability, lowered inhibitions, and suicidal thinking. Though the neurocognitive injury definitions do not recognize behavioral disorders as independent qualifying diagnoses, such symptoms and conditions commonly accompany neurocognitive impairments in the progressive dementias. Even if they do not, they can become the focus of follow-up care and additional treatment, which is of benefit to the retired player.

40. The BAP test battery has been criticized as being too long and difficult for former players who are most impaired and likely to qualify for the highest levels of compensation. This criticism is not well founded. Batteries of this type have been administered to individuals who meet criteria for dementia. Trained and experienced neuropsychologists commonly confront patients with this level of impairment. I have personally conducted research in patients with Alzheimer's using these and analogous test measures (see Keilp JG, Alexander GE, Stern Y, Prohovnik I. *Inferior parietal perfusion, lateralization, and neuropsychological dysfunction in Alzheimer's disease*. Brain and Cognition, 1996, 32(3):365-83). Though people with advanced

impairments may fail at many of the tasks, they nonetheless produce scoreable performance. Finally, many of the tests themselves contain rules and criteria to distinguish dementia from invalid cognitive performance.

41. The BAP test battery has been criticized as having inconsistent impairment criteria. However, impairment criteria were derived from empirical tables establishing base rates in the normal population for low performance (below the 7<sup>th</sup>, 5<sup>th</sup>, or 2<sup>nd</sup> percentile, respectively, for each of the three impairment levels) on multiple tests within a single domain, stratified by premorbid ability level. (Brooks, BL, Iverson, GL, Holdnack JA. *Understanding and Using Multivariate Base Rates with the WAIS-IV/WMS-IV*, pp 75-102 in J Holdnack, L Drozdick, L Weiss, G Iverson *WAIS-IV, WMS-IV, and ACS*, 2014, New York: Elsevier)

42. The BAP test battery has been criticized as relying exclusively on a reading test to establish premorbid ability level. However, in addition to the administration of the Advanced Clinical Solutions (ACS) Word Reading Test, premorbid ability of former players will also be estimated using demographic formulas available in the ACS scoring package. These estimates—one based on a simple demographic formula and one based on a more detailed demographic formula—will provide alternative means of assessing premorbid ability. The procedure producing the highest premorbid estimate will be used to determine the appropriate criteria for assessing level of impairment.

43. The BAP has been criticized as having excessive effort testing. However, due to the level of compensation, it is important to incorporate safeguards against deliberate attempts to manipulate the outcome of the assessment procedures. The scope of this settlement encompasses many former players and will continue for many years. It was necessary to incorporate sufficient measures to assess the quality of effort to insure the prospective integrity of this program.

44. The inclusion of effort testing in the BAP has been criticized because, at some point, effort testing is susceptible to the effects of real impairment. However, the BAP incorporates the Slick criteria for assessing effort, which takes into account the overall pattern of performance and its concordance with known patterns of impairment. (Slick DJ, Sherman EM, Iverson GL. *Diagnostic criteria for malingered neurocognitive dysfunction: proposed standards for clinical practice and research*. Clinical Neuropsychology. 1999, 13(4): 545-61). These criteria incorporate clinical observation by the neuropsychologist. Neuropsychological assessment in the BAP will only be administered by diplomate level, board-certified neuropsychologists, those with the most senior level of clinical credentialing. These individuals will be qualified to judge if effort testing has been failed due to the severity of their level of impairment. This may then be corroborated by an independent neurological exam.

45. The BAP test battery has been criticized for the possibility that individuals with the same raw test scores might not be eligible for the same compensation. However, it is a standard feature of any neuropsychological assessment to only judge raw scores in the context of demographic factors and estimates of premorbid ability. This approach has been validated in studies correlating levels of neuropathology to estimated declines in functioning. An individual with a higher level of education and a higher level of premorbid ability who is currently functioning at a below average level will in all likelihood have a higher level of brain pathology than an individual functioning at the same level who, premorbidly, functioned at a below average level. To fail to adjust for demographic or premorbid ability levels would penalize those with better than average ability, and provide an advantage for those who have lower premorbid ability and experience only a slight decline in function. The goal of the stratification of ability levels is to make the determinations of impairment as fair as possible.

### **Conclusions**

A. The BAP test battery and the related Injury Definitions are a fair and objective means of determining the level of neurocognitive impairment based on standard procedures in Clinical Neuropsychology.

B. The BAP test battery and the related Injury Definitions are informed by, but not restricted to, any specific pathogenic etiology.

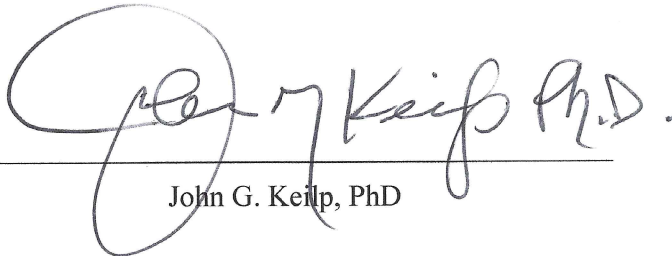
C. The BAP test battery and injury definitions are focused on ascertaining and compensating serious functional and neurocognitive impairments affecting retired players during their lives. Though behavioral disorders do not independently inform and determine the level of neurocognitive impairment under the injury definitions, behavioral disorders and impairments are likely to accompany the evaluated and serious neurocognitive impairments that the program compensates—if not in the short term, then certainly as underlying disease processes progress.

D. For those who do not meet criteria for the qualifying diagnoses, the BAP test battery allows for early detection of neurocognitive and behavioral disturbances that can become the focus of ongoing treatment. In those players whose condition progresses to more severe neurocognitive injury and a qualifying diagnosis, they and their families/representatives are able to apply for compensation throughout the life of the program.

I declare under penalty of perjury that the foregoing is true and correct.

Dated: November 12, 2014

New York, New York



John G. Keip, PhD

# Attachment

**John G. Keilp, Ph.D.**

646-774-7509

[jgk13@columbia.edu](mailto:jgk13@columbia.edu)**Date of Preparation:** October 29, 2014**Personal Data:**

Name: John George Keilp  
 Date of Birth: December 31, 1954  
 Birthplace: Jersey City, New Jersey  
 Citizenship: USA

**Work Experience:**

|                   |                                                                                                                                                                      |              |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| 5/2001 – present  | <b>Department of Psychiatry, Columbia University</b><br>Assistant Professor of Clinical Psychology in Psychiatry                                                     | New York, NY |
| 11/1999 – present | <b>Department of Molecular Imaging and Neuropathology<br/>(formerly Brain Imaging/Neuroscience)</b><br>New York State Psychiatric Institute<br>Research Scientist IV | New York, NY |
| 11/1993 – 11/1999 | <b>Department of Brain Imaging/Neuroscience</b><br>New York State Psychiatric Institute<br>Research Scientist II                                                     | New York, NY |
| 9/1993 – 5/2001   | <b>Department of Psychiatry, Columbia University</b><br>Associate Research Scientist                                                                                 | New York, NY |
| 7/1992 – 7/1993   | <b>Department of Psychiatry, Mount Sinai School of Medicine</b><br>Assistant Professor of Psychiatry                                                                 | New York, NY |
| 4/1990 – 6/1992   | <b>Department of Psychiatry, Mount Sinai School of Medicine</b><br>Instructor of Psychiatry                                                                          | New York, NY |
| 4/1990 – 7/1993   | <b>Mount Sinai Services, Elmhurst Hospital Center</b><br>Senior Psychologist                                                                                         | Queens, NY   |
| 6/1989 – 3/1990   | <b>Laboratory of Clinical Psychophysiology</b><br>New York Hospital/Cornell Medical Center<br>Research Associate                                                     | New York, NY |
| 7/1986 – 6/1987   | <b>Laboratory of Psychopharmacology</b><br>New York Hospital/Cornell Medical Center<br>Staff Associate                                                               | New York, NY |



## **Education:**

|                  |                                                                                                                                                                                                                                                                                                                                                                            |                   |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| 9/1982 – 12/1989 | <b>Fordham University, Graduate School of Arts and Sciences</b><br>Ph.D. in Clinical Psychology, January 1990<br>Ph.D. Thesis Title: “Cerebral Ventricular Enlargement in Schizophrenia: Relationships to Neuropsychological Functioning, Symptomatology, and Disruptions in Speech Prosody”<br>Sponsors: Marvin Reznikoff, Ph.D., John Sweeney, Ph.D., John Sidtis, Ph.D. | Bronx, NY         |
| 9/1981 – 9/1982  | <b>Fordham University, Graduate School of Arts and Sciences</b><br>M.A. in Clinical Psychology, January 1983                                                                                                                                                                                                                                                               | Bronx, NY         |
| 9/1976 – 5/1978  | <b>Cornell University</b><br>Graduate Study, Human Development and Family Studies                                                                                                                                                                                                                                                                                          | Ithaca, NY        |
| 9/1972 – 5/1976  | <b>Rutgers University</b><br>B.A. in Psychology                                                                                                                                                                                                                                                                                                                            | New Brunswick, NJ |

## **Training:**

|                 |                                                                                                               |              |
|-----------------|---------------------------------------------------------------------------------------------------------------|--------------|
| 7/1987 – 5/1989 | <b>Department of Neurology, Memorial Sloan-Kettering Cancer Center</b><br>Fellow in Neuropsychology           | New York, NY |
| 7/1984 – 6/1986 | <b>Payne Whitney Clinic, New York Hospital/Cornell Medical Center</b><br>Intern/Fellow in Clinical Psychology | New York, NY |

## **Between Graduate Programs:**

|                 |                                                                                                                                                                                                                                                           |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6/1978 – 9/1981 | <b>Various Employment</b><br>City of Syracuse, New York (Public Information Specialist)<br>Family and Children’s Services of Syracuse (Counselor)<br>New York State Division for Youth (Aide)<br>City of Ithaca, New York (Swimming Instructor/Lifeguard) |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## **Licensure:**

|                  |                                                   |
|------------------|---------------------------------------------------|
| 8/1990 – present | Licensed Psychologist, New York State (#010203-1) |
|------------------|---------------------------------------------------|

## **Honors:**

|            |                                                     |
|------------|-----------------------------------------------------|
| 1999       | Sallie Foundation Young Investigator Award          |
| 1989       | Sigma Xi                                            |
| 1983       | Phi Kappa Phi                                       |
| 1983       | University Teaching Fellowship (Fordham University) |
| 1981, 1982 | Graduate Assistantships (Fordham University)        |
| 1977, 1978 | Graduate Assistantships (Cornell University)        |
| 1976       | Phi Beta Kappa (Rutgers University)                 |

## **Grant Support:**

### **Present Support:**

- 7/2013 – 6/2018 Conte Center: Neurobiological and Developmental Antecedents to Suicidal Behavior  
National Institute of Mental Health (NIMH)  
1P50MH090964-01A1  
Role: Co-Investigator (J.J. Mann, Principal Investigator)  
Direct Support Year 01: \$1,348,516
- 7/2013 – 7/2015 Ketamine vs. Midazolam: Testing Rapid Relief of Suicide Risk in Bipolar Disorder  
Brain-Behavior Research Foundation (BBRF/NARSAD)  
BBRF 12-3845  
Role: Co-Investigator (M. Grunebaum, Principal Investigator)  
Direct Support Year 01: \$50,000
- 7/2002 – 1/2015 Familial Pathways to Early-Onset Suicide Attempts  
National Institute of Mental Health (NIMH)  
5R01MH056390-15  
Role: Co-Investigator (J.J. Mann, Principal Investigator)  
Direct Support Year 05: \$237,828
- 7/2012 – 4/2017 Ketamine vs. Midazolam: Testing Rapid Relief of Suicide Risk in Depression  
National Institute of Mental Health (NIMH)  
5R01MH096784-03  
Role: Co-Investigator (M. Grunebaum, Principal Investigator)  
Direct Support Year 03: \$390,459
- 12/2008 – 11/2014 Future Suicide Attempt: Psychobiological Features  
National Institute of Mental Health (NIMH)  
5R01MH048514-20  
Role: Investigator (M. Oquendo, Principal Investigator)  
Direct Support Year 05: \$237,600

### **Past Support:**

- 7/2008 – 4/2014 Treating Suicidal Behavior and Self-Mutilation in BPD  
National Institute of Mental Health (NIMH)  
5R01MH061017-10  
Role: Investigator (B. Stanley, Principal Investigator)  
Total Direct Support: \$2,676,574
- 7/2007 – 12/2013 Aggressive Behavior in Depression and Suicide: Biochemical, Behavioral, and Cognitive Aberrations in the Stress Response  
National Alliance for Research on Schizophrenia and Depression (NARSAD)  
Role: Mentor (M. Gorlyn, Principal Investigator)  
Total Direct Support: \$60,000

2/2006 – 1/2011 Paroxetine/Bupropion in Suicide Attempters/Ideators in Major Depression  
National Institute of Mental Health (NIMH)  
5K23MH076049-05  
Role: Mentor/Consultant (M. Grunebaum, Principal Investigator/K Award)  
Total Direct Support: \$818,653

7/2000 – 6/2010 Conte Center for the Neuroscience of Mental Disorders (CCNMD):  
The Neurobiology of Suicidal Behavior  
National Institute of Mental Health (NIMH)  
5P50MH062185-10  
Role: Investigator (J.J. Mann, Principal Investigator)  
Total Direct Support: \$7,460,460 (last five years)

12/2006 – 11/2008 Neuropsychological Predictors of Antidepressant Treatment Response in  
Suicide Attempters  
American Foundation for Suicide Prevention (AFSP)  
Role: Mentor (M. Gorlyn, Principal Investigator)  
Total Direct Support: \$70,000

7/1996 – 6/2008 Neuropsychological Characteristics of Suicide  
National Alliance for Research on Schizophrenia and Depression (NARSAD)  
Role: Principal Investigator  
Total Direct Support: \$60,000

7/1998 – 6/2008 Localization of Selective Attention Deficits in High Lethality Suicide Attempters  
National Alliance for Research on Schizophrenia and Depression (NARSAD)  
Role: Principal Investigator  
Total Direct Support: \$60,000

7/1996 – 6/2008 Pharmacotherapy of High-Risk Bipolar Disorder  
National Institute of Mental Health (NIMH)  
5R01MH059710-05  
Role: Investigator (M. Oquendo, Principal Investigator)  
Total Direct Support: \$2,900,000

7/1996 – 6/2008 Neuropsychological Characteristics of Suicide  
National Alliance for Research on Schizophrenia and Depression (NARSAD)  
Role: Principal Investigator  
Total Direct Support: \$60,000

7/2005 – 7/2007 Naturalistic Study of Duration of Untreated Psychosis and Neuroleptic Response  
in Schizophrenia  
National Alliance for Research on Schizophrenia and Depression (NARSAD)  
Role: Co-Mentor (with A. Dwork/B. Mancevski, Principal Investigator)  
Total Direct Support: \$60,000

4/2002 – 5/2007      Neuropsychological Dysfunction in Suicidal Behavior  
National Institute of Mental Health (NIMH)  
5R01MH062155-04  
Role: Principal Investigator  
Total Direct Support: \$400,000

4/1999 – 3/2004      PET and MRI Imaging of Persistent Lyme Encephalopathy  
National Institute of Neurological Disorders and Stroke (NINDS)  
5R01NS038636-04  
Role: Investigator (B. Fallon, Principal Investigator)  
Total Direct Support: \$4,998,216

4/1999 – 3/2004      Prefrontal D<sub>1</sub> and 5HT<sub>1A</sub> Receptors in Schizophrenia  
National Institute of Mental Health (NIMH)  
5R01MH059144-03  
Role: Investigator (A. Abi-Dargham, Principal Investigator)  
Total Direct Support: \$1,527,936

7/2000 – 6/2003      Assessment of Prefrontal Cortical Dysfunction in Suicidal Behavior  
American Foundation for Suicide Prevention (AFSP)  
Role: Principal Investigator  
Total Direct Support: \$60,000

12/1998 – 2/2003      AD-Like Pathology in Elderly Schizophrenia  
National Institute of Mental Health (NIMH)  
5R01MH060877-08  
Role: Investigator (A. Dwork, Principal Investigator)  
Total Direct Support: \$1,630,948

7/1998 – 6/2000      Center for the Study of Suicidal Behavior  
National Institute of Mental Health (NIMH)  
5P30MH046745-11  
Role: Investigator (J.J. Mann, Principal Investigator)  
Total Direct Support: \$3,098,500

1/1998 – 4/1998      Pilot Study: Neuropsychological Assessment during Treatment with VPA-985  
Unrestricted Grant from Wyeth-Ayerst Research  
Role: Investigator (J.J. Mann, Principal Investigator)  
Total Direct Support: \$150,000

12/1996 – 9/1998      Pilot Study: Neuropsychological Assessment during Treatment with  
Dexfenfluramine  
Unrestricted Grant from Interneuron Pharmaceuticals  
Role: Investigator (J.J. Mann, Principal Investigator)  
Total Direct Support: \$106,536

12/1996 – 12/1997 Impulsivity Assessment in the Study of Suicide  
New York State Psychiatric Center MHCRC Seed Grant  
Role: Principal Investigator  
Total Direct Support: \$5,000

9/1992 – 8/1994 Neurobiology and the Etiology of Schizophrenia  
Scottish Rite Schizophrenia Research Program (at Mt. Sinai Medical Center)  
Role: Investigator (B. Cornblatt, Principal Investigator)  
Total Direct Support: \$60,000

**Pending Support:**

10/2014 – 9/2016 Neurocognitive Markers of Vulnerability to Suicidal Behavior Across the Life-Cycle  
Linked Standard Research Grant, American Foundation for Suicide Prevention (AFSP)  
Role: Principal Investigator (3 Site, Multi-Site Study)  
Total Direct Support: \$75,000 (each site)

**Teaching Experience:**

**Teaching:**

1995 – 2014 Annual Presentations: Works in Progress Seminar Series, Division of Molecular Imaging and Neuropathology (formerly Neuroscience), New York State Psychiatric Institute.

2012 – 2013 Guest Lecturer: Dialectical Behavior Therapy Course (Residents and Psychology Interns; B. Brodsky, Instructor); Neuropsychological Characteristics of Borderline Personality Disorder.

9/1983 – 5/1984 Teaching Fellow: Introductory Psychology (3) and Personality Psychology (1) Courses, Fordham University.

**Invited Addresses:**

6/2014 Grand Rounds: Department of Psychiatry, Duke University Medical Center, Durham, North Carolina, and Central Regional Hospital, Butner, North Carolina. Title: “How research is changing our understanding of suicidal behavior.”

5/2014 Grand Rounds: Department of Psychiatry, Columbia University College of Physicians and Surgeons, New York, New York. Title: “How research is changing our understanding of suicidal behavior.”

4/2014 Invited Speaker: Lyme Disease Association Annual Meeting, Providence, Rhode Island. Title: “Understanding suicidal behavior risk in Lyme Disease: Perspectives from studies of suicidal behavior in depression.”

4/2014 Invited Speaker: Colloquium Series, Department of Clinical Psychology, Teacher’s College, Columbia University. Title: “Neurocognition in suicidal behavior: Where does it fit?”

- 5/2013 Invited Speaker: Macedonian Psychiatric Association 5<sup>th</sup> Annual Meeting, Ohrid, Macedonia. Title: “Evolving perspectives on the clinical correlates of suicidal behavior.”
- 4/2012 Invited Speaker: German Borreliosis Society Annual Meeting, Schweinfurt, Germany. Title: “Differentiating neurocognitive deficits in post-treatment Lyme disease syndrome from psychiatric comorbidities.”
- 10/2008 Invited Speaker: Conference *Lyme and Other Tick-Borne Diseases: Solutions through Cutting-Edge Science* sponsored by the Lyme Disease Association, San Francisco, California. Title: “Neuropsychological profile of Lyme disease vs. depression.”
- 5/2007 Invited Speaker: Conference *Neuropsychological and Neuropsychiatric Impact of Autoimmune Disorders* sponsored by the New York Academy of Sciences and New York Neuropsychology Group, New York, New York. Title: “Cognitive problems in Lyme disease and depression.”
- 1/2006 Grand Rounds: Department of Psychiatry, Wake Forest University School of Medicine, Winston-Salem, North Carolina. Title: “The perplexing relationship of impulsiveness to suicidal behavior.”
- 10/1999 Invited Speaker: Colloquium Series, Department of Psychology, Queens College, City University of New York, Queens, New York. Title: “Neuropsychological assessment and suicidal behavior.”
- 12/1994 Grand Rounds: Department of Psychiatry, Elmhurst Hospital Center, Queens, New York. Title: “Imaging studies with the continuous performance test.”
- 1/1993 Grand Rounds: Department of Psychiatry, Elmhurst Hospital Center, Queens, New York. Title: “Differentiating neurological and psychiatric symptomatology in AIDS-related dementia.”
- 3/1990 Grand Rounds: Department of Psychiatry, Elmhurst Hospital Center, Queens, New York. Title: “Vocal prosody in schizophrenia: Relationships to affective flattening, cerebral ventricular enlargement, and neuropsychological performance.”
- 12/1988 Grand Rounds: Department of Psychiatry, Elmhurst Hospital Center, Queens, New York. Title: “Neuropsychological assessment of AIDS-related dementia.”

**Thesis/Dissertation Mentorship:**

- 2013 Diane Scheiner, Ph.D. Dissertation: “The Incremental Contribution of Posttraumatic Stress Disorder to Verbal Learning and Memory Performance Profiles in Major Depression” (granted by Fordham University).

- 2009 Efrat Schori, Ph.D. Dissertation: "Association of Self-Report Measures of Psychosis-Proneness and the COMT Gene Val158/Met Polymorphism" (granted by Yeshiva University).
- 2006 Lee Damsky, Ph.D. Dissertation: "Attachment, Control of Attention, and Self-Regulation: What is the Nature of the Relationship?" (granted by the New School for Social Research).
- 2007 Marina Schickman, Ph.D. Dissertation: "Age, Gender, General Intelligence, and Educational Influences on Working Memory" (granted by the City University of New York).
- 2006 Lee Damsky, M.A. Thesis: "Differentiating Depressed Patients with, and without, Borderline and non-Borderline Personality Disorders using Attachment Self-Report" (granted by the New School for Social Research)
- 2004 Sofia Marsano, Ph.D. Dissertation: "Differentiating the Neuropsychological Testing Patterns of Borderline Personality Disorder and Major Depressive Disorder" (granted by Fordham University).
- 2003 Marcela Bonafina, Ph.D. Dissertation: "Time Estimation in Schizophrenia: Relationship to Clinical and Neuropsychological Functioning" (granted by the City University of New York).
- 2003 Gwinne Wyatt (Porter), Ph.D. Dissertation: "Executive Functioning in Depression and Suicide" (granted by Fordham University).
- 2001 Marianne Gorlyn, Ph.D. Dissertation: "Performance Test Correlates of Impulsivity and its Component Factors: (granted by Fordham University)
- 1998 Felice Tager, Ph.D. Dissertation: Neuropsychological Deficits in Children with Lyme Disease" (granted by Yeshiva University).
- 1998 Nilima Ramaswamy, M.A. Thesis: "Association of BDRS Factors with rCBF in Patients with Alzheimer's Disease" (granted by New York University).
- 1997 Rice Fuller, M.A. Thesis: "Regional Cerebral Blood Flow Correlates of Memory Decline in the Normal Elderly" (granted by Fordham University).
- 1997 Marianne Gorlyn, M.A. Thesis: "Frontal Lobe Perfusion and Neuropsychological Dysfunction in Alzheimer's Disease" (granted by Fordham University).
- 1995 Annagret Brown, Ph.D. Dissertation: "Adjustment to Diagnosis of Alzheimer's Disease in Spouses of AD Patients" (granted by Adelphi University).



## **Publications:**

### **Original Peer-Reviewed Papers:**

1. Brent, D.A., Wyatt, G., Melhem, N.M., Oquendo, M., Burke, A., Birmaher, B., Stanley, B., Biernesser, C., Keilp, J. Kolko, D., Ellis, S., Porta, G., Zelazny, J., Iyengar, S., Mann, J.J. Familial pathways to early onset suicide attempt: A 5.6 year prospective study. JAMA Psychiatry, In press. (no PMID yet)
2. \*Keilp, J.G., Wyatt, G., Oquendo, M.A., Harkavy-Friedman, J., Mann, J.J. Intact alternation performance in high lethality suicide attempters. Psychiatry Research, 2014, 219(1), 129-136. PMID: 24878299
3. Gill, K.E., Cressman, V., Poe, S.L., Steinfeld, S., Ben-David, S., Keilp J.G., Moore, H., Turkstra, L., Corcoran, C.M. Social inference in individuals at clinical high risk for psychosis. Early Intervention in Psychiatry, In press. (No PMID yet)
4. Ursano, R.J., Stein, M.B., Heeringa, S., Kessler, R.C., Colpe, L.J., Schoenbaum, M., Cersovsky, S., Cox, K., Aliaga, P.A., Benedek, D.M., Borja, S., Brown, G.G., Campbell-Sills, L., Dempsey, C.L., Frank, R., Fullerton, C.S., Gebler, N., Gifford, R.K., Gilman, S.E., Holloway, M.G., Hurwitz, P.E., Jain, S., Kao, T.C., Koenen, K.C., Lewandowski-Romps, L., Mash, H.H., McCarroll, J.E., McLaughlin, K.A., Naifeh, J.A., Nock, M.K., Raman, R., Rose, S., Rosellini, A.J., Sampson, N.A., Santiago, P., Scanlon, M., Smoller, J., Thomas, M.L., Vegella, P.L., Wassel, C.L., Zaslavsky, A.M., Mann, J., Oquendo, M., Stanley, B., Posner, K., Keilp, J. The Army Study to Assess Risk and Resilience in Servicemembers (Army STARRS). Psychiatry, 2014, 77(2), 107-19. PMID 24865195
5. Bruder, G.E., Alvarenga, J.E., Alschuler, D., Abraham, K., Keilp, J.G., Hellerstein, D.J., Stewart, J.W., McGrath, P.J. Neurocognitive predictors of antidepressant clinical response. Journal of Affective Disorders, 2014, 166, 108-114. PMID: 25012418
6. \*Keilp, J.G., Beers, S.R., Burke, A.K., Melhem, N.M., Oquendo, M.A., Brent, D.A., Mann, J.J. Neuropsychological deficits in past suicide attempters with varying levels of depression severity. Psychological Medicine, 2014, 44(14), 2965-74. PMID: 25066266
7. Scheiner, D.L., Keilp, J.G., Mindt, M.R., Burke, A.K., Oquendo, M.A., Mann, J.J. Verbal learning deficits in posttraumatic stress disorder and depression. Journal of Traumatic Stress, 2014, 27(3), 291-298. PMID: 24850268
8. Sublette, M.E., Galfalvy, H.C., Hibbeln, J.R., Keilp, J.G., Oquendo, M.A., Mann, J.J. Polyunsaturated fatty acid associations with dopaminergic indices in major depressive disorder. International Journal of Neuropsychopharmacology, 2014, 17(3), 383-391. PMID: 24300434.
9. Fallon, B.A., Petkova, E., Keilp, J.G., Britton, C.B. Ongoing discussion about the U.S. clinical Lyme trials [Letter]. American Journal of Medicine, 2014, 127(2), e7. PMID: 24462018.
10. Chandra, A.M., Keilp, J.G., Fallon, B.A. Correlates of perceived health-related quality of life in post-treatment Lyme encephalopathy. Psychosomatics, 2013, 54(6), 552-559. PMID: 23845316.

11. Gorlyn, M., Keilp, J.G., Oquendo, M.A., Burke, A.K., Mann, J.J. Iowa Gambling Task performance in currently depressed suicide attempters. Psychiatry Research, 2013, 207(3), 150-157. PMID: 23489594.
12. Grunebaum, M.F., Keilp, J.G., Ellis, S.P., Sudol, K., Bauer, N., Burke, A.K., Oquendo, M.A., Mann, J.J. SSRI versus bupropion effects on symptom clusters in suicidal major depressive disorder: post hoc analysis of a randomized clinical trial. Journal of Clinical Psychiatry, 2013, 74(9), 872-879. PMID: 24107760.
13. \*Keilp, J.G., Gorlyn, M., Russell, M., Harkavy-Friedman, J., Oquendo, M.A., Mann, J.J. Neuropsychological function and suicidal behavior: Attention control, memory, and executive dysfunction in suicide attempt. Psychological Medicine, 2013, 43(3): 539-551. PMID: 22781400
14. Kikuchi, T., Miller, J.M., Schneck, N., Oquendo, M.A., Mann, J.J., Parsey, R.V., Keilp J.G. Neural responses to incongruity in a blocked-trial Stroop fMRI task in major depressive disorder. Journal of Affective Disorders, 2012, 143(1-3): 241-247. PMID: 22995943
15. Fallon, B.A., Petkova, E., Keilp, J.G., Britton, C.B. A Reappraisal of the U.S. Clinical Trials of Post-Treatment Lyme Disease Syndrome. Open Neurology, 2012, 6: 79-87. PMID: 23091568
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17. Culang-Reinlieb, M., Sneed, J.R., Keilp, J.G., Roose, S.P. Change in cognitive functioning in depressed older adults following treatment with sertraline or nortriptyline. International Journal of Geriatric Psychiatry, 2012, 27(8): 777-784. PMID 21919060
18. Fertuck, E.A., Keilp, J., Song, I., Morris, M.C., Wilson, S.T., Brodsky, B.S., Stanley, B. Higher Executive control and visual memory performance predict treatment completion in borderline personality disorder. Psychotherapy and Psychosomatics, 2012, 81(1), 38-43. PMID: 22116411
19. Milak, M.S., Keilp, J., Parsey, R.V., Oquendo, M.A., Malone, K.M., Mann, J.J. Regional brain metabolic correlates of self-reported depression severity contrasted with clinician ratings. Journal Affective Disorders, 2010, 126(1-2), 113-124. PMID: 20381874
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21. \*Keilp, J.G., Oquendo, M.A., Stanley, B.H., Burke, A.K., Cooper, T.B., Malone, K.M., Mann, J.J. Future suicide attempt and responses to serotonergic challenge. Neuropsychopharmacology, 2010, 35(5), 1063-1072. PMID: 18354392
22. Culang, M., Sneed, J.R., Keilp, J.G., Devanand, D.P., Roose, S.P. Change in cognitive functioning following acute antidepressant treatment in late-life depression. American Journal of Geriatric Psychiatry, 2009, 17(10), 881-8. PMID: 19916207

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#### Abstracts:

1. \*Keilp, J.G., Gorlyn, M., Burke, A.K., Oquendo, M.A., Mann, J.J. Clarifying the role of neurocognitive impairments in the risk for suicidal behavior. Paper presented at the biannual meeting of the European Society for the Study of Suicidal Behavior, Tallinn, Estonia, August 2014.
2. Gorlyn, M., Keilp, J.G., Grunebaum, M.F., Ellis, S.E., Burke, A.K., Oquendo, M.A., Mann, J.J. Treatment-Related Changes in Suicidal Ideation are Associated with Changes in Subjective Aspects of Depression . Paper presented at the biannual meeting of the European Society for the Study of Suicidal Behavior, Tallinn, Estonia, August 2014.
3. Gorlyn, M., Keilp, J.G., Burke, A.K., Oquendo, M.A., Mann, J.J., Grunebaum, M.F. No superiority in cognitive improvement with bupropion XL vs. paroxetine CR treatment in suicidal MDD patients. Poster presented at the annual meeting of the Society of Biological Psychiatry, New York, May 2014.
4. Pantazatos, S.P., Miller, J.M., Strupp-Levitsky, M., Kikuchi, T., Oquendo, M.A., Milak, M.S., Ogden, T., Keilp, J.G., Parsey, R.V., Mann, J.J. Serotonergic function and cognitive control: Midbrain serotonin transporter binding predicts cortical conflict-related activity. Poster presented at the annual meeting of the Society of Biological Psychiatry, New York, May 2014.
5. \*Keilp, J.G., Beers, S.R., Burke, A.K., Melhem, N.M., Oquendo, M.A., Brent, D.A., Mann, J.J. Neuropsychological deficits in past suicide attempters with varying levels of depression severity. Paper presented at the 42<sup>nd</sup> annual meeting of the International Neuropsychological Society, Seattle, February 2014.
6. Gorlyn, M., Keilp, J.G., Burke, A.K., Oquendo, M.A., Mann, J.J., Grunebaum, M.F. Subjective but not objective cognitive benefit of bupropion in MDD. Poster presented at the 42<sup>nd</sup> annual meeting of the International Neuropsychological Society, Seattle, February 2014.



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9. Gorlyn, M., Keilp, J.G., Oquendo, M.A., Mann, J.J. Semantic fluency deficit distinguishes high-lethality suicide attempters. Paper presented at the annual meeting of the International Academy of Suicide Research, Montreal, June 2013.
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12. \*Keilp, J.G., Kikuchi, T., Miller, J.M., Oquendo, M.A., Parsey, R.V., Mann, J.J. Altered functional activity during Stroop task performance in depressed suicide attempters. Poster presented at the annual meeting of the Society of Biological Psychiatry, San Francisco, May 2013.
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19. Kikuchi, T., Miller, J.M., Keilp, J.G., Schneck, N., Parsey, R.V., Mann, J.J. Abnormal Neural Responses to Incongruity in Major Depressive Disorder Compared to Controls: A Stroop fMRI Study. Poster presented at the annual meeting of the Society of Biological Psychiatry, Philadelphia, May 2012.
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21. Gorlyn, M., Keilp, J.G., Burke, A.K., Oquendo, M.A., Mann, J.J. Decision-making and cognitive abilities: Processing speed is integral to Iowa Gambling Task performance. Poster presented at the 40<sup>th</sup> annual meeting of the International Neuropsychological Society, Montreal, Canada, February 2012.
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23. Scheiner, D.L., Keilp, J., Burke, A.K., Oquendo, M., Mann, J.J. The contribution of posttraumatic stress disorder to explicit verbal learning and memory performance in major depression. Poster presented at the 40<sup>th</sup> annual meeting of the International Neuropsychological Society, Montreal, Canada, February 2012.
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95. \*Keilp, J.G., Raduns, C., Evans, S., Brown, R.P., McBride, P.A., Mann, J.J. Psychopathology of parasuicidal and failed suicidal attempters. Poster presented at the annual meetings of the Society for Biological Psychiatry and American Psychiatric Association, Chicago, Illinois, May, 1987.
96. Sweeney, J.A., Keilp, J.G., Jacobsen, P., Solomon, C., Deck, M., Mann, J.J. Negative symptoms and brain damage in schizophrenia. Poster presented at the annual meeting of the American Psychiatric Association, Washington, D.C., May, 1986.
97. \*Keilp, J.G., Sweeney, J.A., Jacobsen, P., Solomon, C., Deck, M., Mann, J.J. Negative symptoms, neuropsychological impairment, and brain damage in schizophrenia. Paper presented at the annual meeting of the Society for Biological Psychiatry, Washington, D.C., May, 1986.

# Exhibit 19

**UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF PENNSYLVANIA**

|                                                                                                                                                                                                                                                                      |                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| IN RE: NATIONAL FOOTBALL LEAGUE<br>PLAYERS' CONCUSSION INJURY<br>LITIGATION                                                                                                                                                                                          | No. 2:12-md-02323-AB<br>MDL No. 2323                         |
| Kevin Turner and Shawn Wooden,<br><i>on behalf of themselves and<br/>others similarly situated,</i><br><br>Plaintiffs,<br><br>v.<br><br>National Football League and<br>NFL Properties, LLC,<br>successor-in-interest to<br>NFL Properties, Inc.,<br><br>Defendants. | Hon. Anita B. Brody<br><br>Civil Action No. 2:14-cv-00029-AB |
| THIS DOCUMENT RELATES TO:<br>ALL ACTIONS                                                                                                                                                                                                                             |                                                              |

**DECLARATION OF THOMAS VASQUEZ Ph.D.**

1. I have personal knowledge concerning the matters addressed herein, and submit this declaration in connection with Plaintiffs' motion for approval of the proposed settlement of claims in this litigation. If called as a witness, I could and would testify competently to the facts and opinions set forth in this declaration. I hold all of the opinion set forth herein to a reasonable degree of scientific certainty.

2. I am Vice President of Analysis Research Planning Corporation ("ARPC"), headquartered in Washington, D.C. I have over 35 years of experience in management consulting for private sector clients, and the development of economic models for US and foreign governments to analyze and develop tax, expenditure and regulatory policy. I have

provided expert testimony and analytical support for a broad spectrum of issues and industries. I have consulted on numerous cases including cases for National Gypsum, Fireboard Corporation, Reynolds Tobacco, CSX Inc., Owens Corning, Tyson Foods, Halliburton, AstraZeneca, Foster Wheeler, Gulf Coast Claims Facility, GM Ignition Switch Compensation Fund, and Oracle.

3. Before joining ARPC, I was CEO of Yankelovich Partners, and the Partner in charge of KPMG's Corporate Transactions practice, which includes the bankruptcy practice, the valuation practice, the investment banking and litigation support practice and the expert testimony practice. I was the founder and President of the Policy Economics Group, a firm that was subsequently sold to KPMG. I was responsible for all data base development and tax simulation modeling for federal and state government clients in the United States as well as foreign governments including, among others, Egypt, Pakistan, Hungary, the former Soviet Union, Trinidad-Tobago, Virgin Islands, Guam, El Salvador, and Guatemala. Earlier in my career, I was the Deputy Director of the Office of Tax Analysis at the U.S. Department of Treasury, where I designed and built economic models used to analyze U.S. Government policies. A copy of my CV is attached to this declaration as Exhibit A.

4. In mid-2013, I was asked by Co-Lead Class Counsel in the federal multidistrict litigation<sup>1</sup> to undertake an analysis to assist in settlement negotiations. The analysis was designed to assist in developing a monetary award grid that could be used in negotiating claims and modeling the total cost of resolving all pending and future claims by former National Football League (NFL) players alleging brain injury caused by concussive and sub-concussive impacts (concussion-related injuries). I was also asked to determine whether the agreed upon settlement amount and timing of payments was sufficient to meet all the obligations arising from

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<sup>1</sup> *In re: National Football League Players' Concussion Injury Litigation*, (MDL No. 2323) (E.D. Pa.).

these claims. My conclusions concerning the sufficiency of the Monetary Award Fund of \$675 million were included in my February 2014 report.<sup>2</sup>

5. As a result of issues raised by certain objecting parties, I have now been asked to elaborate on certain elements of the work I conducted for my initial report. Specifically, I have been asked to discuss: (1) the procedures applied in the development of the Monetary Award Grid, including the effect of age and years played on award amounts, and (2) the sufficiency of funding for the Baseline Assessment Program (BAP).

### **Development of the Monetary Award Matrix**

6. The development of settlement award matrices is generally affected by three components: (i) incorporating the effect of additional factors (not related to concussion in the NFL) that likely contribute to the impairment of the individual; (ii) incorporating the general influence of the known characteristics of the U.S. tort system, and (iii) negotiation between plaintiffs and defendants.

7. The following addresses the issues involving the first two components. The diseases compensated in the program are not solely found in former football players. Indeed, they are experienced by all types of individuals. The incidence of these diseases is found across gender, all races, all occupations, and likely within any cohort one may define.

8. This fact clearly demonstrates that there is not a sole, direct causal link between playing football, experiencing concussions, and contracting some level of neurological impairment or condition/disease. Indeed, we should expect that if there were no causal link between concussions and these diseases, many of the former players would nonetheless contract one of

---

<sup>2</sup> See “NFL Concussion Liability Forecast”, February 14, 2014 (attached to this declaration as Exhibit B).



these diseases in their lifetime (in this hypothetical the incidence rate would be that of the general population).

9. Of course, the exact contribution of all the factors (concussions and the other factors) cannot be known. Epidemiologists may attempt to statistically determine the relative contribution of one or a few of the factors by viewing large groups of individuals. The analysis may indicate the average relative effect of various factors on the entire group, but cannot conclude anything about a single individual.

10. Two factors are of particular concern in the development of the award matrix. The first is that the compensable disease types are strongly related to age (less so with ALS); as an individual ages, his probability of contracting one of the compensable diseases increases dramatically regardless of whether or not he played football. The second is the number and severity of concussions that a player experienced (due to the reported connection between TBI and the onset of neurological impairment/disease).

11. The relative values highlight the effect of age. As former players age, the relative contribution of concussions experienced as a player declines in importance – an unfortunate consequence of aging is the higher probability of the onset of serious neurological impairment issues. The Monetary Award Matrix recognizes the reduced contribution of concussions and lowers the award amount as the player ages.

12. Table 1 shows the relative impact of age on the onset of Level II (Dementia). In the general population, it is estimated that a 75 year old is 302 times more likely to experience dementia than a 45 year old. All else equal, dementia experienced by a 75 year old is less likely to have been caused by concussions. A major factor is simply the process of aging.



**Table 1****Relative Values: Annual Incidence of Disease, by Age**

| <u>Age</u> | <u>Level II<br/>(Dementia)</u> |
|------------|--------------------------------|
| 45         | 1                              |
| 55         | 13                             |
| 65         | 82                             |
| 75         | 302                            |

Note: Individual years are interpolations from broad age groups  
 Level II is based on the incidence rates for dementia

13. It is reported in the scientific literature that the frequency and severity of TBI are factors in the causal link between TBI and the onset of neurological impairment/disease - the higher the number and severity of TBI, the greater the risk of neurological impairment. However, accurate and complete information on the number and severity of the concussions experienced by former players is lacking. Therefore, the number of years played by a former player is used as a proxy for the exposure to concussions and TBI. It is assumed that the longer an individual played, the greater the number and severity of impacts he experienced and the greater should be his monetary award. Years played in the NFL also recognizes the significance of pre-NFL concussion risk (*e.g.*, youth football, high school football, college football) which may have contributed greater relative exposure in players playing few years in the NFL.

14. The Monetary Award Matrix incorporates this effect into its values. A player with at least five years of playing time receives full award values for any disease. For players with less than five years of playing time the award values are reduced proportionately as playing time decreases.

### **Incorporating the Effect of the U.S. Tort System**

15. It has long been recognized that the age of a claimant affects the value of his claim in the tort system; all else equal, the older the individual, the lower the award. While a precise quantification of this effect is not possible, a few of the reasons generally accepted as the cause of the age effect include: (1) lower lost earnings (since the older individual has a shorter remaining work life), (2) lower costs for long term medical care (since the older individual has a shorter life expectancy), and (3) fewer dependents.

16. Experience indicates because of these factors, the award may be reduced by 2% to 3% for every year over age 45. This effect is also incorporated in the matrix. These considerations were incorporated into a working model of the matrix to be used in connection with negotiating the settlement.

### **Sufficiency of Funding for the Baseline Assessment Program (BAP)**

17. In connection with my original work on the Settlement, I analyzed the sufficiency of funding for the BAP.<sup>3</sup> The following summarizes my analysis and conclusions concerning the BAP funding. The BAP provides for:

- testing of former NFL players to establish baseline levels of neurocognitive functioning and,
- paying supplemental financial benefits (BAP supplemental benefits) for players who are diagnosed under the BAP with Level 1 neurocognitive impairment.

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<sup>3</sup> The Class Action Settlement Agreement as of June 25, 2014 ensures that the \$75 million funding for the BAP is sufficient. Section 5.14 (b) states: “the maximum per player BAP Supplemental Benefit payable under this Section, taking into account such factors as the number of Retired NFL Football Players using the BAP and diagnosed with Level 1 Neurocognitive Impairment, shall be determined on the one-year anniversary of the commencement of the BAP by Co-Lead Class Counsel and Counsel for the NFL Parties, in consultation with the BAP Administrator, and with the approval of the Court. The maximum per player benefit will be set at a sufficient level to ensure that there will be sufficient funds, without exceeding the Seventy-Five Million United States Dollars (U.S. \$75,000,000) cap on the BAP Fund, to pay for every Retired NFL Football Player to receive one baseline assessment examination.”

18. The settlement agreement provides \$75 million for the BAP fund to cover both the baseline testing and supplemental benefits. Testing under the BAP will proceed for 10 years after its implementation; Supplemental Benefits may be payable for an additional 5 years after expiration of the testing period.

19. There are three main components that determine the total cost of the BAP program. The first is the cost of the BAP program for Baseline Examinations, which is dependent on the number of players who will participate in the baseline examination program, and the average cost per examination.

20. The second is the cost of Supplemental Benefits provided to retired players under the BAP program, which is dependent on the number of players that will qualify for supplemental benefits, and the average supplemental benefit.

21. The third is the cost to administer the BAP program.

22. The remainder of this document describes my conclusions regarding the total cost of the Program, as well as a description of the methodology used to form my conclusions. Certain components of the analysis are dependent on cost estimates provided by the BAP Administrator.<sup>4</sup>

### **Costs of Baseline Examinations**

23. The key issue in determining the adequacy of the fund is the estimate of the number of players who will participate in the BAP program for baseline examinations. Retired players that have registered for the Settlement are eligible to participate in the baseline examination component of the Program. The analysis conducted for my February 2014 Report reflected that as many as 11,886 former players who were still alive at the end of 2013 would register for the

---

<sup>4</sup> Garretson Resolution Group.

Settlement. Of these, 96 have already received a Qualifying Diagnosis leaving 11,790 players who are assumed to participate in the BAP.<sup>5</sup>

24. The average cost of a baseline exam is estimated by the BAP Administrator to be \$3,500 per exam. This results in a total nominal cost of approximately \$41.3 million (\$3,500 times 11,790 participating players).

### **Funding Available for Supplemental Benefits**

25. The cost of supplemental benefits depends on the estimate of the number of players with Level 1 neurocognitive impairments and the average cost per eligible player. As indicated above, the Settlement Agreement ensures that funding is adequate by providing that supplemental benefits will be set to precisely exhaust the \$75 million of funding.

26. Table 2 shows the amount of funds available for Supplemental Benefits. Administrative costs and baseline examinations are anticipated to cost approximately \$48.8 million. That leaves \$26.2 million available to pay supplemental benefits.

---

<sup>5</sup> All living retired players yet to manifest a disease and be diagnosed who register are assumed to participate in the BAP. As indicated in my February 2014 Report, there are 11,790 players that are still alive, but as yet undiagnosed, including both those who have already filed lawsuits and additional players whom it is assumed will register for the Settlement in the future.

**Table 2****Estimated Cost of BAP Program - Baseline Examination,  
BAP Supplemental Benefits and Cost of Administration**

(\$ Millions)

| <u>Category</u>                            | <u>Amount</u> |
|--------------------------------------------|---------------|
| Total Fund Value                           | \$75.0        |
| Use of Funds                               |               |
| Administration Costs <sup>1</sup>          | \$7.5         |
| Cost of Baseline Examinations <sup>2</sup> | \$41.3        |
| Amount Available for Supplemental Benefits | <u>\$26.2</u> |
| Total Use of Funds                         | \$75.0        |

1.) Source of administrative costs: BAP Administrator

2.) 11,790 former players at an average cost of \$3,500 per exam

Source of \$3,500 average cost: BAP Administrator

27. Based on information provided by the 4,200 former players that have already filed claims, as well as background and induced incidence rates for Level 1 neurocognitive impairments, I estimate that between 500 and 750 former players will be diagnosed with Level 1 Neurocognitive Impairment and thus qualify for Supplemental Benefits.

28. Table 3 shows the average amount per player of Supplemental Benefits that could be paid under three alternative eligibility assumptions. The alternative assumptions allow for average per player Supplemental Benefits from a low of \$35,000 to a high of \$52,000.

**Table 3****Average Supplemental Benefits Under Alternative Eligibility Assumptions**

| <u>Alternative</u> | <u>Number of<br/>Players Receiving<br/>Supplemental Benefits</u> | <u>Average<br/>Benefit</u> | <u>Total<br/>Cost<br/>(\$ millions)</u> |
|--------------------|------------------------------------------------------------------|----------------------------|-----------------------------------------|
| Low                | 500                                                              | \$52,000                   | \$26.2                                  |
| Middle             | 625                                                              | \$42,000                   | \$26.2                                  |
| High               | 750                                                              | \$35,000                   | \$26.2                                  |

I declare under the penalty of perjury that the foregoing is true and correct.

Dated: November 12, 2014

Washington, D.C.



Thomas Vasquez, Ph.D.

# Exhibit A



*CV of Thomas Vasquez Ph.D.*

Dr. Vasquez is a vice president at Analysis, Research & Planning Corporation (ARPC) in the New York office. Dr. Vasquez has over 35 years of experience in management consulting for private sector clients, the development of economic models for US and foreign governments to analyze and develop tax, expenditure and regulatory policy and providing expert testimony over a wide range of issues.

Dr. Vasquez has provided management consulting services for private sector companies in a wide array of industry sectors. The services include identifying methods to: (1) increase the stock price or value of the company; (2) leverage the firm's brand asset; (3) assist underperforming companies and (4) provide general valuation services.

Dr. Vasquez has assisted US and foreign governments in the development of tax, expenditure and regulatory policy. The services include the development of large scale micro-economic models to allow policymakers to determine individual and company behavioral reactions to tax and regulatory policy.

Dr. Vasquez has provided expert testimony, depositions and analytical litigation support on a broad spectrum of issues involving statistical techniques, computer simulation, economic behavior and economic models, including, among others:

- Using statistical models to forecast a company's future liability from lawsuits related to its former production of asbestos including the following representative assignments – National Gypsum Corporation, the Fibreboard Corporation, Owens Corning, Congoleum, Western MacArthur, Burns and Roe, Inc. and Specialty Products Holding Corp.,
- Using statistical models to forecast a company's future liability from lawsuits related to its former sales of products.
- Using statistical models to determine the settlement value of bodily injury and financial loss claims resulting from exposure to a wide range of hazardous or defective materials or activities.
- The statistical analysis of the determinants of supply and demand in certain industry segments for use in business valuations before the Bankruptcy Court.
- The impact of regulation and tax policy on prices, sales and production.
- Analyzing the allocation of liability from a state's superfund tax.
- The statistical analysis of reasonable officer compensation levels in closely held companies.

Prior to joining ARPC, Dr. Vasquez was president and CEO of Yankelovich Partners, Inc., a leading market research firm. While at Yankelovich Partners, Dr. Vasquez had responsibility for engagements designed to determine the best approach to maximize the value of the client's firm. These engagements involved understanding the source of the value components of the firm – value of the firm's brand, product/service lines responsible for increasing (decreasing) stock price, the role of joint products and other key components of the firm's value.

From 1993 to 1997, Dr. Vasquez was the National Partner in Charge of Corporate Transactions Services for KPMG Peat Marwick. In this role he practiced in and led four of KPMG's national

practices. One practice area was in the area of litigation support. This area involved almost exclusively the use of highly trained professionals in providing expert testimony in a wide range of litigation issues. The second practice area involved providing consulting services in the bankruptcy and troubled company area. This area involved analyzing the condition and prospects of a company in financial distress, generally involving recommendations for expense control, revenue growth, elimination/sale of product and distribution lines and the elimination/selling of production sites. The third area is investment banking. This area focused on three major components: (1) buying and/or selling of companies for middle market clients; (2) advise to non-public clients preparing an Initial Public Offering, and (3) advise to clients on methods to increase share price and/or cash flow in anticipation of sale. The fourth area was business valuation. This area focused on the valuation of businesses in a wide range of settings including bankruptcy, fairness opinions, mergers and acquisitions, estate planning and other venues requiring valuation services.

Dr. Vasquez served on the Firm's Board of Directors from 1993 to 1997 and served as the Chairman of the Board's Strategic Planning Committee.

Prior to selling his firm to KPMG, Dr. Vasquez was the founder and President of the Policy Economics Group. Dr. Vasquez was responsible for all data base development and tax simulation modeling for federal and state government clients in the United States as well as foreign governments including among others Egypt, Pakistan, Hungary, the former Soviet Union, Trinidad-Tobago, Virgin Islands, Guam, El Salvador and Guatemala. Dr. Vasquez also developed similar models using specialized industry data bases to determine tax impacts and behavioral responses for commercial firms, industry associations and law firms. These models were also used to formulate the client's strategic direction, market initiatives and value maximization strategies.

Prior to establishing the Policy Economics Group, Dr. Vasquez was the Deputy Director for the U.S. Department of the Treasury Office of Tax Analysis. While there, he guided U.S. tax policy analysis and designed large micro-simulation models and data bases for the U.S. Treasury Department and the Joint Tax Committee of the U.S. Congress. He appeared before Congress to provide testimony on such issues as capital gains taxation. He also designed numerous specialized models and data bases for analyzing policy issues at the company, industry, and individual levels.

### **Professional Experience:**

President and CEO, Yankelovich Partners Inc., 1997 to 1999

National Partner in Charge, Corporate Transactions Services, KPMG Peat Marwick, 1993 to 1997.

Managing Partner, Policy Economics Group, KPMG Peat Marwick, 1987 to 1993.

Founder and President, Policy Economics Group, 1983 to 1987.

Deputy Director, Office of Tax Analysis, U.S. Department of the Treasury, 1979 to 1983.

Assistant Director, 1978 to 1979; Fiscal Economist, 1972 to 1976.

Chief Economist, New York State Economic Development Board, 1977 to 1978.

Staff Economist, Congressional Joint Committee on Taxation, 1976.

Staff Economist, American Enterprise Institute for Public Policy Research, 1972.

**Education:**

Ph.D., Economics, Clark University, 1973.

M.A., Economics, Clark University, 1972.

B.S., Mathematics, State University of New York - Potsdam, 1970.

**Legal Experience and Testimony:**

National Gypsum Company Bankruptcy Proceedings, 1991

Deposition

Testimony

Gerald Ahern, et. al. vs. Fiberboard Corporation, et. al., 1994

Deposition

Testimony

Ezell Thomas, et. al. vs. R.J. Reynolds Tobacco Company, et. al., 1999

Deposition

Fiberboard Corporation and Owens Corning vs. R.J.Reynolds Tobacco Company, et. al., 1999

Deposition

Western Mac Arthur Company and Mac Arthur Company vs. General Accident Insurance Co. of America; United States Fidelity & Guaranty Co.; Argonaut Insurance Company, 1999

Affidavit

CSX Transportation, Inc. and American Home Ins. Co., 2000

Deposition

ADR Proceeding Celotex vs. Travelers Casualty and Surety Co. and London Market Insurers, 2000

Deposition, 2004

Testimony, 2004

Owens Corning Bankruptcy Proceedings, 2001

Deposition, 2004

Trial Testimony, 2005

Michael Albanese vs. Compaq Computer Corporation, 2002

Affidavit

ADR Proceeding ACandS, Inc. vs. Travelers Casualty and Surety Co., 2003

ASARCO vs

Deposition, 2003

Western Mac Arthur Company and Mac Arthur Company Bankruptcy Proceedings, 2003

Oglebay Norton Bankruptcy Proceedings, 2004

Deposition, 2004

Trial Testimony, 2004

Halliburton Bankruptcy Proceedings, 2004

Congoleum vs Ace Ins. Et al, 2005

Deposition, 2005

Trial Testimony, 2006

Gene B. Griego, et al., Plaintiffs, vs. Bechtel National, Inc. et al., Defendants

Deposition, 2005

Sandra Sue Fullen, et al, Plaintiffs v. Philips Electronics North America Corporation, a Delaware corporation, et al., Defendants

Deposition, 2005

St. Paul Fire and Marine Insurance Company, Plaintiff, vs. A.P.I., Inc., Defendant and Counter-Claimant

Deposition, 2005

Dana Corporation Bankruptcy Proceedings, Case No. 06-10354(BLR), 2007

Deposition, 2007

Trial Testimony, 2007

API, INC. Asbestos Settlement Trust v. Atlantic Mutual Insurance Company; Civil No. 09-0665 (JRT/JJG); United States District Court, D. Minnesota; July 9, 2010.

Deposition, 2010

Applebee's International, Inc., DineEquity, Inc. and Weight Watchers International, Inc. Sheree Shepard and Anthony Watts, On Behalf of Themselves and All Others Similarly Situated vs. DineEquity, Inc. et al.; United States District Court; District of Kansas; No. 08-cv-2416.

Deposition, 2010

API, Inc. Asbestos Settlement trust, et al. v. Zurich American Insurance Company, et al. Court File No. 09-CV-975 (JRT/JJG)

Deposition, March 29, 2011

Tronox Incorporated, Tronox Worldwide, LLC f/k/a; Kerr-McGee Chemical Worldwide LLC, and Tronox, LLC, f/k/a Kerr-McGee Chemical LLC vs. Anadarko Petroleum Corporation and Kerr-McGee Corporation

Deposition 2012

Specialty Products Holding Corp., et al Bankruptcy proceedings, Case No. 10-11780(JFK), 2012

Deposition, 2012

Trial Testimony, 2013

Fundamental Long Term Care, Inc., Debtor; The Estate of Juanita Amelia Jackson, et al, v. General Electric Capital Corporation, et al; Case No.: 8:11-bk-22258-MGW Chapter 7; United States Bankruptcy Court, Middle District of Florida, Tampa Division.

Deposition, 2014

Trial Testimony, 2014

# Exhibit B

Privileged and Confidential

# NFL Concussion Liability Forecast

**Prepared by:**  
**Thomas Vasquez Ph.D.**  
**Analysis Research Planning Corporation**  
**February 10, 2014**

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## 1. Introduction

On January 31, 2012, a federal multidistrict litigation was established in the United States District Court for the Eastern District of Pennsylvania, In re: National Football League Players' Concussion Injury Litigation, (MDL No. 2323). Additional similar lawsuits were also filed and are pending in various state and federal courts.

I was asked by representatives of the Plaintiff's Executive Committee in that litigation to undertake an analysis to assist in the settlement negotiations. My analysis is designed to determine the total cost of resolving all pending and future claims by former National Football League (NFL) players alleging brain injury caused by concussive and sub-concussive impacts (concussion-related injuries). I was also asked to determine whether the agreed upon settlement amount and timing of payments is sufficient to meet all the obligations arising from these claims.

This report presents the methodology and conclusions from my analysis.

## 2. Summary of Conclusions

As of the beginning of the 2013/2014 NFL season there were approximately 21,000 individuals who are former NFL players – approximately 19,400 who are still alive and 1,700 who are deceased.<sup>1</sup> Pursuant to the terms of the Settlement Agreement, upon approval of the settlement, all of these individuals will be eligible for payment following registration and submission of appropriate evidence of a qualifying diagnosis of a concussion-related injury and related claims information.

My primary conclusions are:

- 1.) Approximately 3,600 of the former players are estimated to develop compensable injuries and participate in the settlement with total compensation of approximately \$950 million. Because many of the injuries take years to develop, the compensation stream extends far into the future. Indeed, only approximately 54% of total compensation will be paid in the first 20 years of the operation of the settlement fund.
- 2.) The agreed upon level of funding (taking into account the earnings on the funds, the payout stream and the compensation scheme) is sufficient to pay all of the anticipated

---

<sup>1</sup> An estimated 3,300 former players have died since 1984. The Settlement Agreement, however, presumptively limits eligibility for monetary awards to the Representative Claimants of players who died on or after January 1, 2006. Approximately 800 deceased former players are eligible under this limitation. However, the analysis includes 900 players deceased from 2000 through 2005 based on a provision in the Settlement Agreement concerning statutes of limitation. The analysis of the former players who died from 2000 to 2005 is different from that concerning the former players who died after 2005, as explained herein.

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concussion-related claims. I understand that the funding for the Monetary Award Fund (MAF) totals \$675 million<sup>2</sup> to be paid over the next 20 years.

My conclusions are based on: (1) a compilation of the number of former players (both still alive and deceased) that are eligible to be class members which includes detailed information on their demographics, current compensable injury (if any) and NFL playing experience; (2) an in depth review of the medical literature and health statistics related to concussion-related injuries; (3) the application of a life cycle forecasting model that follows each individual player over time (applying epidemiological probabilities each year of the player's remaining life, the model determines whether and if so, when a player contracts a compensable injury), and; (4) estimates of the probability that the former players elect to participate in the settlement.

Certain estimates and assumptions are critical in forming my opinion. The following is a summary of the analysis supporting my two basic conclusions.

#### *Total Compensable Claims and Compensation*

Table 2-1 provides a summary of estimated compensable claims and total compensation by type of injury based on the compensable injuries defined in the Settlement Agreement.

Approximately 3,600 former players will receive payment. The overwhelming majority, approximately 15,000, are not compensated because they never contract a compensable disease. The remaining 2,300 do contract a compensable disease but based on evidence from other mass tort settlements, it is estimated that these eligible class members never elect to participate.

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<sup>2</sup> The total settlement is \$750 million. However, \$75 million is earmarked for the Baseline Assessment Program (BAP), leaving \$675 million to pay compensation to class members.

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**Table 2-1**  
**Former Players with Compensable Concussion-Related Injury**  
**by Type of Injury with Total Compensation**  
**(\$ millions)**

| Most Serious Injury/ Disease | Total Claims |         | Total Compensation |         |
|------------------------------|--------------|---------|--------------------|---------|
|                              | Count        | Percent | Amount             | Percent |
| Compensable Injury/Disease   |              |         |                    |         |
| ALS                          | 18           | 0.5%    | \$49.4             | 5.3%    |
| Death w/CTE                  | 46           | 1.3%    | \$64.9             | 7.0%    |
| Parkinson's                  | 14           | 0.4%    | \$3.2              | 0.3%    |
| Alzheimer's                  | 1,757        | 48.9%   | \$474.9            | 50.9%   |
| Level 2                      | 1,761        | 49.0%   | \$341.0            | 36.5%   |
| Level 1.5                    | na           | na      | na                 | na      |
| Total, Compensable           | 3,596        | 100.0%  | \$933.4            | 100.0%  |
| Not Compensated              | 17,474       | na      | na                 | na      |
| Grand Total                  | 21,070       | na      | \$933.4            | 100.0%  |

Note: All compensation categorized by most serious injury. All Level 1.5 claims are assumed to progress to Level 2 and more serious levels. \$248 million is paid to former players at Level 1.5. This amount is included in the category of their most serious disease as follows: \$212 million paid at Level 2; \$34 million to Alzheimer's and \$2 million to other disease types. Players are not compensated because they did not experience a compensable injury or did not file a claim.

The overwhelming percent of compensable claims and compensation is paid to former players with Alzheimer's disease or Level 2 neurocognitive disorders – 98% of compensable claims and 87% of compensation. The distribution of claims reflects the relative probabilities of the occurrence of the various diseases in the general population combined with the additional incidence related to concussions.

#### *Timing of Compensation Payments and Funding*

Table 2-2 shows the timing of payments to former players and the receipt of funding by the settlement fund through the payment of the last compensable claim. The timing and total amount of funding are sufficient to pay all claims.

- Compensation payments in the first five years are high because there are a relatively large number of former NFL players who have already indicated they intend to file a claim. These claimants include former players who have already been diagnosed with a

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compensable injury and will be paid in the first few years of the settlement fund. After these claims are resolved, the fund will be receiving and paying claims at a significantly lower rate, as the filing of future claims depends on the timing of the manifestation of future compensable injuries;

- The initial funding amount of approximately \$364 million (55% of the total funding) is designed to provide enough assets to pay the compensable claims already identified and to cover the startup costs of the claim processing facility while still leaving a significant asset. The remaining assets are supplemented with an additional \$311 million which is paid in annual installments through 2033. At that time, the remaining assets of the settlement fund (with earnings) are sufficient to pay all remaining claims.
- The Fund Balance increases through 2034 as the additional funding and earnings exceed the required amount to pay claims. The fund balance begins to decline after that as the settlement fund continues to pay claims, but with earnings as its only source of revenue - there is no additional funding contributed after 2033. The last claim is paid in the early 2080s at which time the fund is estimated to have a balance of approximately \$80 million.<sup>3</sup>

**Table 2-2**  
**Settlement Fund Compensation Payments, Funding and Earnings**  
**Through the Payment of the Last Compensable Claim**  
**(\$ millions)**

| Time Period        | Compensation<br>Amount <sup>1</sup> | Funding | Earnings | End of Period<br>Fund<br>Balance |
|--------------------|-------------------------------------|---------|----------|----------------------------------|
| 2014 through 2018  | \$292.3                             | \$364.0 | \$25.0   | \$91.6                           |
| 2019 through 2023  | \$78.2                              | \$103.7 | \$28.1   | \$143.8                          |
| 2024 through 2028  | \$95.5                              | \$103.7 | \$38.6   | \$189.0                          |
| 2029 through 2038  | \$178.6                             | \$103.7 | \$103.2  | \$214.0                          |
| 2039 through 2048  | \$167.7                             | \$0.0   | \$72.9   | \$116.2                          |
| Remaining 35 Years | \$133.3                             | \$0.0   | \$103.4  | \$80.4                           |
| Total              | \$945.5                             | \$675.0 | \$371.2  | na                               |

<sup>1</sup>Includes processing Costs

Note: Funding plus earnings is actually slightly in excess of the amount needed to pay all claims.

<sup>3</sup> The \$80 million balance in the early 2080s implies overfunding of only approximately \$5 million at 2014 levels.

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*The Effect of Age, Years Played in the NFL and Inflation on Settlement Amounts*

The Settlement Agreement provides maximum monetary awards to players who are less than 45 years old when they are diagnosed with a compensable disease and have played in the NFL for 5 years or more. There is a reduction in the compensation levels based on age and years played beginning with players age 45 or older and players with less than 5 years of experience in the NFL. The Settlement Agreement also provides for an escalation in the compensation amounts to adjust for inflation. These adjustments have a significant effect on the average amount of compensation paid to the former players and a corresponding significant effect on the total compensation paid by the fund.

The magnitude of the effect of age, playing time and inflation depends heavily on the average age of the players when contracting a compensable disease, the number of years the individual played in the NFL and the year the disease is contracted. Table 2-3 summarizes these variables.

The table shows that the average age for former players today is approximately 51 years of age and the average age at the time of diagnosis with the most serious disease is approximately 77 years of age for both groups. Of course, 77 years of age is simply an average. It is expected that many former players will develop compensable injuries at a much younger age. Due to the average age at the time of onset of the disease, compensation amounts are subject to significant reductions from the maximum awards.

Table 2-3 also shows that 60% of all players estimated to receive compensation have fewer than the 5 years needed to receive the maximum monetary award. It also shows that individuals who have already filed a claim have significantly more playing time than individuals who have not yet filed.<sup>4</sup>

- First, only 35% of the players who have already filed played fewer than 5 years. However, 73% of the players who have not yet filed played fewer than 5 years.
- In addition, those who have already filed played an average of 6.3 years. Those who have not yet filed played an average of only 3.5 years.

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<sup>4</sup> Throughout the report, a player is labeled a filer if he is currently represented by an attorney and has provided an indication the he will participate in the class. It does not necessarily mean the player has filed a law suit.

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**Table 2-3**  
**Selected Characteristics of Former Players:**  
**Age, Years Played and Year of Contracting Disease/Injury**

| Player Category | Age At:          |                             | Years Played                                     |                      | Year of Most Serious Injury |
|-----------------|------------------|-----------------------------|--------------------------------------------------|----------------------|-----------------------------|
|                 | 2014 or at Death | Year of Most Serious Injury | Percent of Players with Less Than 5 Years Played | Average Years Played |                             |
| Already Filed   | 52.0             | 76.3                        | 35%                                              | 6.3                  | 2037                        |
| Future Filer    | 51.2             | 77.7                        | 73%                                              | 3.5                  | 2039                        |
| All Filers      | 51.4             | 77.4                        | 60%                                              | 4.4                  | 2039                        |

Table 2-4 shows the effect of these adjustments for age and years played. Without any adjustments, players would be compensated at the maximum value for their injury – shown in the table as the Maximum Monetary Award.

**Table 2-4**  
**Effect of Age, Years Played and Inflation on Average and Total Compensation**  
**by Injury Category**

| Most Serious Injury/ Disease | Maximum Monetary Award | Value After Age Adjustment |                                  | Value After Age and Years Played Adjustment |                                  | Actual Final Value |                                  |
|------------------------------|------------------------|----------------------------|----------------------------------|---------------------------------------------|----------------------------------|--------------------|----------------------------------|
|                              |                        | Average Payment            | Total Compensation (\$ millions) | Average Payment                             | Total Compensation (\$ millions) | Average Payment    | Total Compensation (\$ millions) |
| Compensable Injury/Disease   |                        |                            |                                  |                                             |                                  |                    |                                  |
| ALS                          | \$5,000,000            | \$2,930,000                | \$52.8                           | \$2,120,000                                 | \$38.1                           | \$2,740,000        | \$49.4                           |
| Death w/CTE                  | \$4,000,000            | \$1,910,000                | \$85.8                           | \$1,440,000                                 | \$64.9                           | \$1,440,000        | \$64.9                           |
| Parkinson's                  | \$3,500,000            | \$320,000                  | \$4.5                            | \$190,000                                   | \$2.7                            | \$230,000          | \$3.2                            |
| Alzheimer's                  | \$3,500,000            | \$340,000                  | \$593.8                          | \$190,000                                   | \$340.7                          | \$270,000          | \$474.9                          |
| Level 2                      | \$3,000,000            | \$210,000                  | \$368.8                          | \$140,000                                   | \$246.5                          | \$190,000          | \$341.0                          |
| Level 1.5                    | \$1,500,000            | na                         | na                               | na                                          | na                               | na                 | na                               |
| Total, Compensable           | na                     | na                         | \$1,105.7                        | na                                          | \$693.0                          | na                 | \$933.4                          |

Note: All Level 1.5 are assumed to progress to Level 2. All compensation categorized by most serious injury

Adjusting for age at diagnosis reduces the average compensation significantly below the maximum monetary award levels. The impact varies across injury types. For example, the average payment for diagnosed cases of ALS is \$2.93 million rather than the maximum award amount of \$5 million - a 40% reduction. The average age-adjusted payment for players being diagnosed with Alzheimer's is \$0.34 million, about 90% less than the maximum award amount of \$3.5 million.

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Adjusting for years played has a less substantial effect on award values after the age adjustment. For example as Table 2-4 shows, for former players diagnosed with ALS the average payment after the adjustment for number of years played is \$2.1 million – a 28% reduction. The average payment to players diagnosed with Alzheimer’s disease is reduced from \$0.34 million to \$0.19 million.

Finally, adjusting for inflation increases average and total compensation. Again, as Table 2-4 shows, adjusting for inflation increases average payments by approximately 30% for ALS and 40% for Alzheimer’s, 20% for Parkinson’s, no change for death with CTE and approximately 40% for Level 2 neurocognitive disorders. However, the actual final average award amounts for each disease are significantly below the maximum monetary award amounts, resulting in an inflation adjusted total compensation amount of \$933.4 million.

#### *Player Participation Rates*

The participation rate in the Settlement Agreement among eligible former NFL players is a significant factor in determining the number of claims that will be filed and thus also the amount of funds required to resolve the claims.

In order to establish an estimate of the participation rate, several factors were considered. First, experience with participation rates in other mass tort cases was reviewed. In general, participation rates in mass torts are dependent on the outreach and notice program, the lag from exposure/injury to the manifestation of a compensable disease/injury, and award size. For comparison, the participation rates for various large and widely publicized class action settlements and data on consumer product recall response rates were considered. The participation rates varied considerably, but centered in a range of 20% to 30%.

In this case, approximately 4,200 former players had already retained counsel and indicated a desire to participate at the time this analysis was prepared, which represents more than 20% of the potentially eligible population of approximately 21,100 former players.<sup>5</sup> I understand that there has been for some time and continues to be extensive outreach to former players by plaintiff lawyers and others to participate. Whether continuing further efforts are likely to attract a significant number of additional players is not certain.

Nonetheless, it is assumed that the participation rates in this settlement will achieve high levels because the settlement has very high public visibility, and contact information available through the NFL Players union and other sources that can be used in the notification process is available for a large portion of the potentially eligible population. My forecast of the number of future claims and the resulting cash requirements to fund the settlement assumes that 50% of the living

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<sup>5</sup> Additional claims have been filed since this analysis was performed.



and deceased<sup>6</sup> former NFL players that have not yet filed will ultimately participate. When combined with those who have already filed, it is assumed that approximately 60% of all potentially eligible former players will participate in the settlement.

#### *Inflation of Compensation Awards and the Earnings Rate of Settlement Assets*

A key assumption in determining whether the settlement is adequately funded is the real rate of return earned on settlement assets. The calculations assume a 2.5% real rate of return – a 4.5% nominal yield and an underlying 2.0% inflation rate. The actual expected return is dependent on the real returns available for different types of assets and the portfolio mix adopted by the settlement administrators.

Long term historical experience suggests that a real rate of return of 2.5% is at the extreme lower level of expected returns. Returns on debt and equity both exceed 2.5% real rate of return over long periods of time. Indeed, even an extremely high reliance on low risk financial assets historically has yielded more than 2.5% annually. However, because of historically low bond yields in recent years, I conservatively assumed a 2.5% return.

Recent experience supports an average annual inflation rate of approximately 2.0% (especially since the Settlement Agreement caps the annual increase at 2.5%, thereby limiting the impact of any short term aberration). It should be noted that the adequacy of the settlement funds depends on the real rate of return, not the absolute level of the two components.

### **3. Methodology**

The methodology used in this analysis is based on a life cycle forecasting model. The life cycle model looks at each individual in the population of former NFL players and “ages” them year-by-year into the future.

During the aging process, the life cycle model takes each of the former NFL players individually and first applies the epidemiological risk equations to compute the probability of contracting each one of the compensable injuries. The model then applies overall mortality rates to compute the likelihood of death due to other natural causes<sup>7</sup>. The mortality rates used to compute the likelihood of death due to natural causes are those for all causes for males in the same age group.

Thus, for each player and for each year, computations are made based on the probabilities of each of the following: (1) the player will die of natural causes, (2) he will be diagnosed with one of the compensable terminal diseases (Alzheimer’s, ALS, Parkinson’s, Death with CTE), (3) he

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<sup>6</sup> The participation rate for former players who were deceased before 2006 was reduced to 20%. This is because the settlement requires that pre-2006 deceased players must satisfy local statute of limitation conditions related to wrongful death claims and such requirement will preclude eligibility for most of these claims.

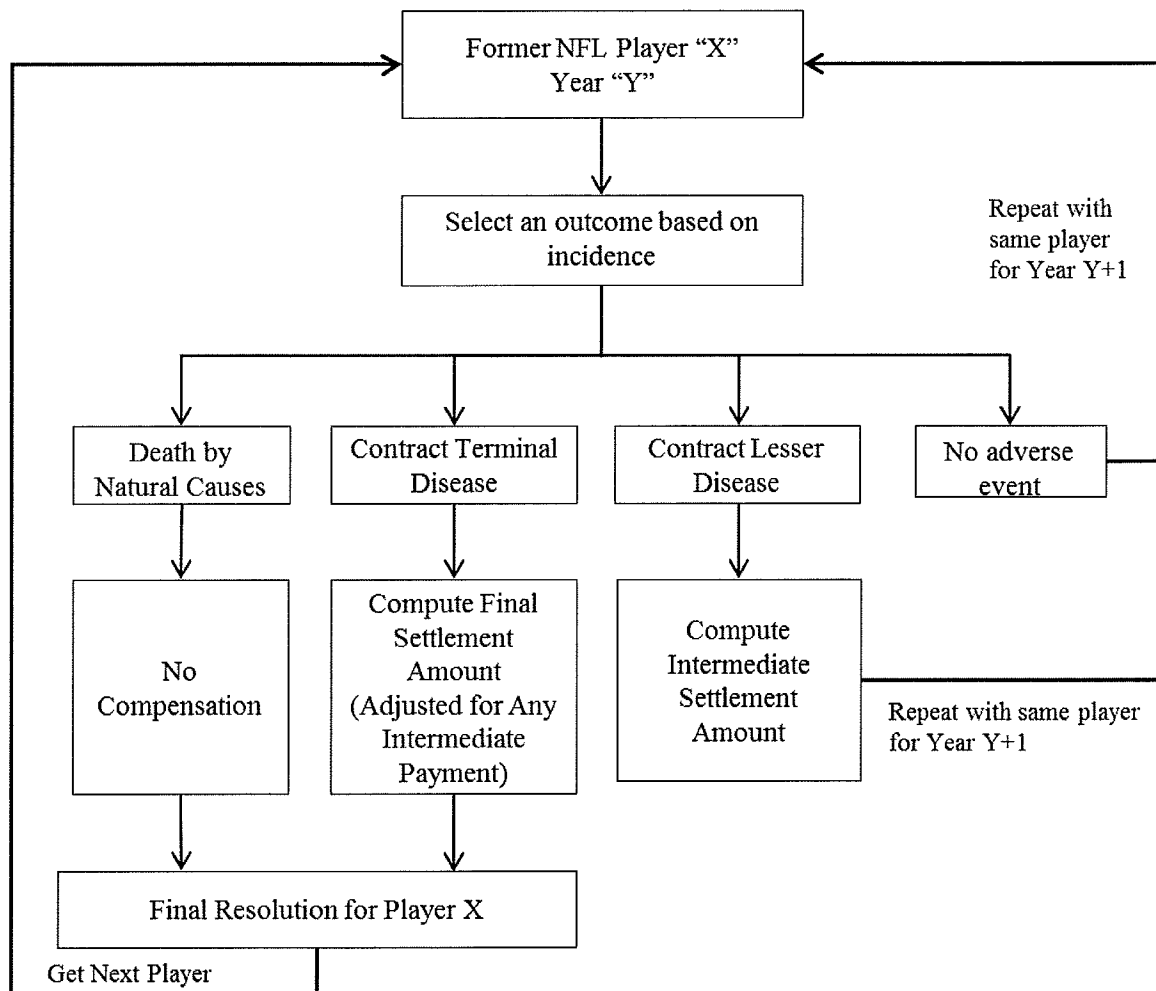
<sup>7</sup> The term “natural causes” used throughout this report refers to any cause of death that is not identified as a compensable disease in the Settlement Agreement.

will be diagnosed with one of the non-terminal neurocognitive disorders (Level 1.5 or 2), and (4) he will not experience any of these adverse conditions during that year.

These steps are repeated year-by-year, changing the mortality rates and disease incidence rates accordingly for age until the individual player reaches a final resolution – either he dies of natural causes or he is diagnosed with one of the terminal diseases and receives full final compensation. The model then repeats this entire process for the next player until all players in the population have reached the final resolution stage, and the last member of the population of former NFL players is no longer alive.

A diagram of the life cycle modeling methodology is shown in Table 3-1.

**Table 3-1: Life Cycle Methodology Overview**



As the diagram shows, there are two possibilities for reaching a final resolution with a player: (1) when the model predicts that a player dies of natural causes he is removed from the eligible population either without compensation or with compensation for a non-terminal disease, or (2) when the model predicts that a player is diagnosed with one of the terminal diseases, a computation is made of the settlement amount due to him based on the disease, his age and the number of playing years. When the model predicts that a player is diagnosed with a neurocognitive disorder, he is assigned a Level 2 diagnosis. In every case where Level 2 is diagnosed, it is assumed that the player initially presented with a Level 1.5 disorder three years earlier. A computation is made of the settlement amount due to him based on condition, age and playing years as he progresses from Level 1.5 to Level 2, and that player is run through the model again repeatedly until his date and cause of death or terminal disease are determined with compensation calculated accordingly over time.

Once a player has been determined by the model to be diagnosed with a disease that is eligible for compensation, the computation of the settlement amount is made based on the compensation matrix. This matrix identifies a maximum value of compensation for each disease diagnosis, and then makes adjustments for certain factors that take into account background incidence and risk exposure such as the player's age at the time of the diagnosis and the number of years he played in the NFL.

There are 1,712 deceased former NFL players who may be eligible for compensation. This includes 76 players who have filed claims that include a qualifying diagnosis, and 1,636 non-filers who died between 2000 and 2013. In this analysis, for claims already filed that provided a qualifying diagnosis, this information was used to determine the amount of compensation due.

Deceased players for which no claim was filed but whose survivors are potentially eligible for compensation and deceased players who filed a claim but included no diagnosis information were also run through the life cycle forecasting model retrospectively in order to determine the likely date of diagnosis if any for a compensable disease. In order to forecast compensation that may be paid to these deceased players, the analysis does the following: (1) retains those cases in which death occurred between 2000 and 2013, (2) applies the same background and induced incidence rates used for eligible living former players to the deceased players retrospectively based on their age to determine a diagnosis date of a terminal or lesser disease, (3) applies the age discount (based on the estimated age at diagnosis) and the discount for years played, and (4) applies estimated participation rates.<sup>8</sup>

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<sup>8</sup> The participation rates for deceased players who have not filed a claim is the same as that used for eligible living players who have not filed (50%) based on the assumption that living family members or the player's estate may file a representative claim. For deceased players in this category who died prior to 2006, it is assumed that 20% of those who participate will be able to successfully demonstrate to the Claims Administrator that their claims are not time barred under the applicable statute of limitations, and thus establish their eligibility for compensation. For deceased claimants who have filed a claim and were diagnosed with a compensable disease the participation rate is 100%. For deceased claimants who did not provide a diagnosis, the participation rate is assumed to be 95%.

The total compensation amount for all eligible former NFL players is determined by summing the compensation amounts for each player year-by-year.

The key inputs to the model are:

- Player data including age and years played in the NFL
- Background incidence for each of the compensable diseases
- Induced incidence from concussions for each of the compensable diseases
- Compensation amounts for each disease with adjustments for age and years played

Player data was derived from a combination of several authoritative sources. The sources, data, and methods used to identify the population of players who are potentially eligible for compensation are described in detail in section 4 of this report.

The incidence rates for each of the compensable diseases are determined by combining the background incidence rate for each disease with the induced incidence rate for each disease from concussion-related injuries. Because the compensable diseases have been the subject of numerous epidemiological studies, there is a reasonable amount of research available to effectively determine incidence rates by age. An extensive review of the available literature and research was conducted as part of this analysis to determine the incidence of each disease by age.

There is far less quantitative data available concerning the induced incidence of these diseases caused by concussive injuries. A review of the available research in this area, particularly with respect to football-related injuries and concussions, was undertaken. However, it was still necessary to make some assumptions regarding induced incidence rates.

The sources of data and assumptions that have been applied in the life cycle model to determine incidence rates are described in further detail in section 5 and Appendix A of this report.

The compensation amounts used in the analysis for each disease are based on the compensation matrix in the Settlement Agreement. These compensation amounts include adjustments for age at the date of diagnosis to account for background incidence and for years played in the NFL to account for risk exposure. A further description of the compensation amounts and the adjustment factors is presented in section 6 of this report.

#### **4. Database of Former Players, Living and Deceased**

##### **Database of Former Players**

An essential input for the analysis is a comprehensive database of information about the population of former NFL players who are eligible for the settlement. In this case extensive historical data are available from a variety of authoritative sources, and it has been possible to combine different databases to compile the relevant information for the entire population of

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former NFL players, including those still living and those that are deceased. The population of former NFL players was identified by combining information from four primary sources: (1) the database of NFL players who had already filed claims during the pre-settlement period,<sup>9</sup> (2) the NFL player database owned and maintained by STATS, Inc.,<sup>10</sup> (3) a database of former players provided by the NFL, and (4) a database of practice/development squad players also provided by the NFL. These four databases were merged, duplicate records were removed, and additional research and analysis was done to update deficient player records to produce the most complete list of former NFL players possible.

This analysis identified a total of 21,070 former NFL players who may be eligible for compensation. As shown in Table 4-1, this included 19,434 players who are currently alive or are deceased but have filed a claim, and 1,636 players who died between the years 2000 to 2013 but have not filed a claim.

**Table 4-1**  
**Former Players Potentially Eligible for Compensation**

| <u>Source</u>                                     | <u>Count</u>  |
|---------------------------------------------------|---------------|
| Living                                            |               |
| Database of players who filed claims <sup>1</sup> | 4,207         |
| NFL Database                                      | 13,340        |
| STATS Database                                    | 1,349         |
| NFL Practice/Development Squad Database           | 538           |
| Subtotal                                          | <u>19,434</u> |
| Deceased, 2000-2013                               | <u>1,636</u>  |
| Grand Total                                       | <u>21,070</u> |

<sup>1</sup> This count includes 76 former NFL players who are deceased that have filed a claim.

In this analysis it has been assumed that former players, who were deceased in the period from 2000 to 2013, including those with a diagnosis of CTE, are eligible for compensation. Former

<sup>9</sup> Since this analysis was completed additional claims have been filed by former NFL players and their representatives and claims continue to be filed. These players are included in the population used in the analysis and do not affect the outcome.

<sup>10</sup> STATS Inc. is a service provider to the NFL that collects and maintains game and player statistics. STATS, Inc. is considered one of the leading sources of historical, current and real-time sports data and statistics.

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players who died prior to 2006 are not eligible under the Settlement Agreement absent a separate determination of eligibility.

The STATS and NFL databases include more data items than were needed for this analysis. The analysis makes use of variables such as age, date of birth, date of death, number of years played, and specific years played.

In merging the databases from the different sources, a number of issues were encountered:

- In the database of claims already filed, 206 of the records did not match to the NFL or STATS databases. Among these 40% provided no playing history. However, based on further research playing history was found for 17%. For 80% of the 206 cases, reference to the player's football experience was found through online sources. None of the unmatched cases were removed from the database.
- There were a total of 3,700 players included in the NFL database but not in the STATS database. Of these, 40% were practice players. Nearly all of the non-practice players had fewer than 2 seasons playing experience.
- Merging the three databases indicates that there may be an additional 1,349 eligible living inactive players. However, this count may be an overstatement for two reasons: (1) some STATS players may be deceased, but have no recorded date of death and, (2) some STATS players may be currently employed by the NFL.

There were also a number of issues encountered with respect to the deceased players in the databases. The STATS database included information for 5,930 deceased players dating as far back as 1925. The NFL database included only 1,617 deceased former players but it covered a shorter historical period. The NFL database contains player records only since 1980 while the STATS database includes some 2,286 records for players deceased prior to 1980. In the more recent period beginning in 2000, the STATS database includes 1,515 deceased player records compared to 981 in the NFL database. Merging, matching and de-duplicating the NFL, STATS and filed claims data sets identified a total of 1,636 non-filing deceased players who died in the period from 2000 to 2013.

#### **Profile of Former NFL Players – Age and Eligible Seasons Played**

The analysis examines the entire life cycle of each living former NFL player in the population in order to determine whether he will die of natural causes or be diagnosed with a compensable disease and when that will happen. Importantly, as discussed elsewhere in this report, the amount of any monetary award is highly dependent on the age of a player when he is diagnosed with a compensable disease and on the number of years he played in the NFL.

Table 4-2 below shows the current age profile of former players grouped into different categories – all players, non-filing players that are currently living, players that have already filed claims, and players that are deceased and no claim has been filed on their behalf. As this table shows,



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the average age of all players is 50.5 years, and 36% of all players are currently aged 55 or older. For those who are 55 or older, the age discount reduces the maximum award amount by approximately two-thirds (except in the rare cases of ALS).

**Table 4-2**  
**Profile of Former NFL Players by Age**

| Age         | All Players |         | Living/Not Yet Filed |         | Already Filed |         | Deceased/Not Yet Filed |         |
|-------------|-------------|---------|----------------------|---------|---------------|---------|------------------------|---------|
|             | Count       | Percent | Count                | Percent | Count         | Percent | Count                  | Percent |
| Under 45    | 8,354       | 40%     | 6,744                | 44%     | 1,502         | 36%     | 108                    | 7%      |
| 45 - 49     | 2,368       | 11%     | 1,831                | 12%     | 487           | 12%     | 50                     | 3%      |
| 50 - 54     | 2,802       | 13%     | 2,095                | 14%     | 657           | 16%     | 50                     | 3%      |
| 55 - 59     | 1,794       | 9%      | 1,261                | 8%      | 458           | 11%     | 75                     | 5%      |
| 60 - 64     | 1,514       | 7%      | 1,026                | 7%      | 371           | 9%      | 117                    | 7%      |
| 65 - 69     | 1,291       | 6%      | 824                  | 5%      | 330           | 8%      | 137                    | 8%      |
| 70 - 74     | 1,007       | 5%      | 604                  | 4%      | 220           | 5%      | 183                    | 11%     |
| 75 - 79     | 769         | 4%      | 419                  | 3%      | 129           | 3%      | 221                    | 14%     |
| 80+         | 1,171       | 6%      | 423                  | 3%      | 53            | 1%      | 695                    | 42%     |
| Total       | 21,070      | 100%    | 15,227               | 100%    | 4,207         | 100%    | 1,636                  | 100%    |
| Average Age | 50.5        |         | 47.9                 |         | 51.0          |         | 73.3                   |         |

Table 4-3 below shows the profile of former players based on the number of years played in the NFL,<sup>11</sup> also grouped into the four different categories: all players, players who have not yet filed and are currently living, players that have already filed claims, and players that are deceased and no claim has been filed on their behalf. As this table shows, the average number of years played for all players is 4.1 years and 48% of all players played less than 3 years. For those who played less than 3 years, the years played discount reduces the maximum award amounts by 50% to 90%. The average number of years played for the 15,227 currently living players who have not yet filed was 3.4 years, which would result in a years-played discount of 40% on average from the maximum award amounts.

<sup>11</sup> The Settlement Agreement uses the concept of “eligible season” in determining whether to apply any discount. In the Settlement Agreement, an “eligible season” is a season in which the player was on the active roster for 3 or more regular season or postseason games, or on the practice squad roster for 8 or more games. The databases of former NFL players generally identified the calendar years that a player played. The analysis performed herein uses calendar years as the basis for determining the number of eligible seasons and therefore may overestimate the number of eligible seasons played.



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**Table 4-3**  
**Profile of Former NFL Players by Years Played**

| Years Played <sup>1</sup> | All Players |         | Living/Not Yet Filed |         | Already Filed |         | Deceased/Not Yet Filed |         |
|---------------------------|-------------|---------|----------------------|---------|---------------|---------|------------------------|---------|
|                           | Count       | Percent | Count                | Percent | Count         | Percent | Count                  | Percent |
| <1                        | 2,247       | 11%     | 2,200                | 14%     | 39            | 1%      | 8                      | 0%      |
| 1                         | 5,041       | 24%     | 4,287                | 28%     | 238           | 6%      | 516                    | 32%     |
| 2                         | 2,719       | 13%     | 2,198                | 14%     | 321           | 8%      | 200                    | 12%     |
| 3                         | 1,940       | 9%      | 1,407                | 9%      | 392           | 9%      | 141                    | 9%      |
| 4                         | 1,564       | 7%      | 946                  | 6%      | 476           | 11%     | 142                    | 9%      |
| 5                         | 1,366       | 6%      | 804                  | 5%      | 443           | 11%     | 119                    | 7%      |
| 6                         | 1,232       | 6%      | 650                  | 4%      | 477           | 11%     | 105                    | 6%      |
| 7                         | 965         | 5%      | 519                  | 3%      | 357           | 8%      | 89                     | 5%      |
| 8                         | 889         | 4%      | 475                  | 3%      | 340           | 8%      | 74                     | 5%      |
| 9                         | 802         | 4%      | 452                  | 3%      | 289           | 7%      | 61                     | 4%      |
| 10                        | 679         | 3%      | 361                  | 2%      | 271           | 6%      | 47                     | 3%      |
| >10                       | 1,626       | 8%      | 928                  | 6%      | 564           | 13%     | 134                    | 8%      |
| Total                     | 21,070      | 100%    | 15,227               | 100%    | 4,207         | 100%    | 1,636                  | 100%    |
| Average Years Played      | 4.1         |         | 3.4                  |         | 6.3           |         | 4.3                    |         |

<sup>1</sup>Players who played an additional 0.5 years are included in the higher years played figure, e.g., a player who played 3.5 years is reported here as having played 4 years.

## 5. Incidence of Compensable Diseases

In order to forecast the timing and amount of monetary compensation that will be required to resolve the claims of former NFL players it is necessary to determine the incidence of compensable diseases for the population of former players over the lifetime of that population. This involves two steps:

- Determining the background incidence of the compensable diseases in the population. The background incidence represents the rate at which these diseases are expected to arise naturally in the population, including former NFL players.
- Determining the additional incidence of the compensable diseases that will arise in the population of former NFL players due to concussions – referred to as induced incidence or risk multiplier.

### *Compensable Injuries*

The Settlement Agreement identifies 6 diagnostic categories as the compensable diseases:

- ALS

- Death with CTE<sup>12</sup>
- Parkinson's
- Alzheimer's
- Level 2 Neurocognitive Impairment<sup>13</sup>
- Level 1.5 Neurocognitive Impairment

For each of these diseases extensive review of the medical and scientific literature was performed to estimate the background and induced incidence rates.

The following sections describe the approach used to determine the background incidence, induced incidence and total incidence estimated for the population of former NFL players.

### Background Incidence

To determine background incidence, this analysis has relied upon the best available published literature and research. A detailed description of the sources and methods used to determine background incidence is provided in Appendix A. The most severe diseases, referred to as terminal diseases, are defined in the Diagnostic and Statistical Manual -V (DSM-5) and the World Health Organization's International Classification of Diseases (9<sup>th</sup> and 10<sup>th</sup> editions) (ICD-9 and ICD-10). Because there has generally been extensive research and study of these diseases, information on background incidence rates (or prevalence rates) is reasonably available. As described in Appendix A, in order to arrive at a consistent measure and application of incidence rates, certain methods and assumptions were made including:

- Converting Prevalence to Incidence – in cases where only prevalence data were available, prevalence was converted to incidence.
- Extrapolating data for older age groups to younger ages – in cases where data were available only for specific older populations (*e.g.*, over age 65), the incidence was extrapolated to younger ages by defining the rate for 20-year-olds as 1/100<sup>th</sup> of the rate for 65-year-olds and increasing the rate through this age range by fitting an exponential curve.
- Exponential smoothing of data aggregated by age ranges – for diseases where data were provided only by age ranges, the incidence rate was assigned to the midpoint of the age range and extrapolated to each age by fitting an exponential curve.
- Adjustment for history of stroke – because Alzheimer's and neurocognitive disorders are sometimes attributed to a prior history of stroke, the incidence of these diseases was adjusted to account for this joint causality. According to epidemiological research, 9.1%

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<sup>12</sup> Under the terms of the Settlement Agreement, only pre-settlement diagnoses of Death with CTE are eligible for compensation. Accordingly, the analysis does not forecast future cases of Death with CTE, and there is no corresponding induced incidence prospectively. Also, this analysis used confirmed cases of CTE.

<sup>13</sup> Estimates of the incidence of Level 1.5 and Level 2 neurocognitive disorders were based on incidence for dementia as described in the methodology section of this report.

of Alzheimer's patients and 8.4% of dementia patients had a history of stroke prior to the onset of these diseases. Since compensation to claimants who have a prior stroke history will be discounted by 75%, the overall incidence of Alzheimer's and dementia was adjusted to account for this instead of forecasting them separately. The incidence of Alzheimer's and dementia were reduced by an amount equal to 75% of the number of cases with joint causality (*i.e.*, 25% of those with a prior history of stroke are included in the background incidence).

- Adjustment for Traumatic Brain Injury (TBI) – The Settlement Agreement provides a 75 percent discount to monetary award amounts in cases where there has been a prior incident of TBI for all disease categories except ALS. This analysis did not assume any adjustments for prior incidence of TBI. Therefore to the extent that such cases occur, the analysis will tend to overestimate the total cost of monetary awards.

### **Induced Incidence**

Research and literature concerning the potential increased incidence for the compensable diseases is limited, and some of it has historically been controversial. In this analysis peer-reviewed literature has been given priority, and controversial studies have been excluded. Studies of comparable sports injuries have also been relied upon. However, it was still necessary to develop and apply assumptions concerning the induced risk effect of concussions among former NFL players.

For Alzheimer's disease, Parkinson's and dementia, a risk multiple of 2.0 for ages 20 through 60 was used. After age 60, the risk multiple was assumed, based on available literature, to be more additive than multiplicative, and so the adjusted induced incidence is calculated as the background incidence at those ages, plus the incremental difference between the incidence rates at age 60 for each of the diseases. For ALS, a similar methodology was applied for the various ages, but using a multiplier for ages 20-60 of 1.4.

A detailed description of the sources and methods used to determine background incidence is provided in Appendix A.

### **Total Incidence**

For each of the compensable diseases, the background incidence and induced incidence were combined to yield the total incidence among former NFL players. A summary of the incidence and counts of players for each compensable disease for the most serious injury/disease type is shown in Table 5-1 below. In cases where players contracted more than one type of injury, only the most serious injury is included here (*i.e.*, no double counting).

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**Table 5-1**  
**Estimated Total Incidence by Injury/Disease Type for Former NFL Players**

| <b>Most Serious Injury/<br/>Disease Type</b> | <b>Total Incidence - Background and Induced</b> |                |
|----------------------------------------------|-------------------------------------------------|----------------|
|                                              | <b>Count</b>                                    | <b>%</b>       |
| ALS                                          | 31                                              | 0.15%          |
| Death w/CTE                                  | 46                                              | 0.22%          |
| Parkinson's                                  | 24                                              | 0.11%          |
| Alzheimer's                                  | 2,946                                           | 13.98%         |
| Level 2                                      | 2,878                                           | 13.66%         |
| Level 1.5                                    | 0                                               | 0.00%          |
| Deceased, No Disease                         | 15,145                                          | 71.88%         |
| <b>Total</b>                                 | <b>21,070</b>                                   | <b>100.00%</b> |

Note: All Level 1.5 are assumed to progress to Level 2, therefore the incidence count is the same for both impairment levels

As the table shows, taking into account both background and induced incidence, approximately 72% of the total population of former NFL players will die of natural causes unrelated to one of the compensable diseases. Of the 28% who it is estimated will be diagnosed with a compensable disease, 49% (2,878) will be diagnosed with Level 2 neurocognitive disorder as their most severe compensable disease. It is estimated that 3,047 former NFL players will be diagnosed with one of the severe terminal diseases – about 97% of those being diagnosed with Alzheimer's.

### **Total Incidence by Disease**

To determine how the incidence of each of the compensable diseases will affect the cash flow requirements for claim resolution it is critical to know how many cases will be diagnosed each year and then to compute the discounts that would be applied to the compensation amount for the players' age and number of years played in the NFL. The life cycle forecasting model estimates this for each player and each year. The following tables summarize the incidence and provide averages of players' ages and years played for each disease. For each of these tables, the columns represent the following:

- Year of Diagnosis – the period of years for which the incidence data have been summarized.

- Players Still Living – count of players who are alive at the beginning of the period. Over the course of each period, the count of players is reduced by the number who are deceased by any cause.
- Number Diagnosed – the number of players who will be diagnosed with that particular disease during the period (prior to application of participation rates).
- Percent Diagnosed – the percent of players still living at the beginning of the period who are diagnosed with the disease during the period.
- Average Age – the average age of the players who are diagnosed with the disease during the period.
- Average Years Played – the average number of years played in the NFL by the players diagnosed with the disease during the period.

Players may be diagnosed with more than one compensable injury/disease over time. For example, a former player may qualify for Level 2.0 and then contract Alzheimer's later in life. Most of the counts shown in the tables of this report include only the most severe compensable disease that a player contracts in his lifetime. In the example above, the player is counted only as contracting Alzheimer's in Table 5-1 even though he had a prior diagnosis of Level 2.0. However, compensation is paid at the time each disease is contracted. If the player is first diagnosed with a neurocognitive disorder and is then later diagnosed with an even more serious disease, he is paid at the time of the initial diagnosis and then he is paid again at the time of the more serious disease diagnosis. The second payment for the more serious disease diagnosis is a net amount that recognizes he had already received some compensation for his injuries.

Tables 5-2 through 5-7 show the incidence of all injuries. The same player discussed above who was only counted as having contracted Alzheimer's, will be counted twice in the examples below – once as he is eligible for Level 2.0 and again when he contracts Alzheimer's. This potential double counting means that the disease counts in Tables 5-2 through 5-7 exceed the counts in Table 5-1 and other tables in the report that count only the most serious injury.

Table 5-2 shows the estimated incidence of ALS by multi-year periods and a profile of the average ages and years played for players diagnosed with this disease. As this table shows, there will be an estimated 36 cases of ALS among former NFL players who have an average age of 60 and played an average of 4.3 years.

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**Table 5-2**  
**Total Incidence and Profile for ALS, by Year**

| <b>Year of<br/>Diagnosis</b> | <b>Players Still<br/>Living</b> | <b>Number<br/>Diagnosed</b> | <b>Percent<br/>Diagnosed</b> | <b>Average<br/>Age</b> | <b>Average Years<br/>Played</b> |
|------------------------------|---------------------------------|-----------------------------|------------------------------|------------------------|---------------------------------|
| <2006                        | 21,070                          | 6                           | 0.03%                        | 48.0                   | 3.7                             |
| 2006 - 2010                  | 20,343                          | 4                           | 0.02%                        | 50.8                   | 8.3                             |
| 2011 - 2020                  | 19,699                          | 3                           | 0.02%                        | 56.7                   | 2.0                             |
| 2021 - 2030                  | 17,595                          | 6                           | 0.03%                        | 48.8                   | 5.6                             |
| 2031 - 2040                  | 14,501                          | 6                           | 0.04%                        | 62.7                   | 3.3                             |
| 2041 - 2050                  | 10,635                          | 4                           | 0.04%                        | 69.8                   | 2.4                             |
| 2051 - 2060                  | 6,632                           | 5                           | 0.08%                        | 77.2                   | 5.3                             |
| 2061 - 2070                  | 3,114                           | 2                           | 0.06%                        | 82.5                   | 2.3                             |
| 2071 - 2080                  | 850                             | 0                           | 0.00%                        | -                      | -                               |
| 2081 +                       | 67                              | 0                           | 0.00%                        | -                      | -                               |
| <b>Total</b>                 |                                 | <b>36</b>                   | <b>0.17%</b>                 | <b>60.0</b>            | <b>4.3</b>                      |

Table 5-3 shows the estimated incidence of Death with CTE and a profile of the average ages and years played for players diagnosed with this disease. In the case of Death with CTE, this analysis assumes that only those cases that had a confirmed diagnosis pre-settlement will be compensated. Therefore the model does not forecast any futures cases of CTE. As the table shows, there are 46 cases of Death with CTE among former NFL players who have an average age of 60.3 and have played an average of 7.9 years.

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**Table 5-3**  
**Total Incidence and Profile for Death with CTE, by Year**

| <u>Year of<br/>Diagnosis</u> | <u>Players Still<br/>Living</u> | <u>Number<br/>Diagnosed</u> | <u>Percent<br/>Diagnosed</u> | <u>Average<br/>Age</u> | <u>Average Years<br/>Played</u> |
|------------------------------|---------------------------------|-----------------------------|------------------------------|------------------------|---------------------------------|
| <2006                        | 21,070                          | 3                           | 0.00%                        | 44.0                   | 11.3                            |
| 2006 - 2010                  | 20,343                          | 18                          | 0.00%                        | 57.7                   | 7.3                             |
| 2011 - 2020                  | 19,699                          | 25                          | 0.00%                        | 64.1                   | 8.0                             |
| 2021 - 2030                  | 17,595                          | 0                           | 0.00%                        | -                      | -                               |
| 2031 - 2040                  | 14,501                          | 0                           | 0.00%                        | -                      | -                               |
| 2041 - 2050                  | 10,635                          | 0                           | 0.00%                        | -                      | -                               |
| 2051 - 2060                  | 6,632                           | 0                           | 0.00%                        | -                      | -                               |
| 2061 - 2070                  | 3,114                           | 0                           | 0.00%                        | -                      | -                               |
| 2071 - 2080                  | 850                             | 0                           | 0.00%                        | -                      | -                               |
| 2081 +                       | 67                              | 0                           | 0.00%                        | -                      | -                               |
| Total                        |                                 | 46                          | 0.00%                        | 60.3                   | 7.9                             |

Note: This analysis assumes that only those cases that had a confirmed diagnosis pre-settlement will be compensated. Therefore, no future cases of Death with CTE have been forecast for compensation.

Table 5-4 shows the estimated incidence of Parkinson's by multi-year periods and a profile of the average ages and years played for players diagnosed with this disease. As this table shows, there will be an estimated 25 cases of Parkinson's among former NFL players who have an average age of 75.5 and played an average of 4.9 years.

**Table 5-4**  
**Total Incidence and Profile for Parkinson's, by Year**

| <u>Year of<br/>Diagnosis</u> | <u>Players Still<br/>Living</u> | <u>Number<br/>Diagnosed</u> | <u>Percent<br/>Diagnosed</u> | <u>Average<br/>Age</u> | <u>Average Years<br/>Played</u> |
|------------------------------|---------------------------------|-----------------------------|------------------------------|------------------------|---------------------------------|
| <2006                        | 21,070                          | 1                           | 0.00%                        | 56.0                   | 10.0                            |
| 2006 - 2010                  | 20,343                          | 2                           | 0.01%                        | 78.5                   | 6.0                             |
| 2011 - 2020                  | 19,699                          | 4                           | 0.02%                        | 81.5                   | 5.5                             |
| 2021 - 2030                  | 17,595                          | 6                           | 0.03%                        | 71.3                   | 5.3                             |
| 2031 - 2040                  | 14,501                          | 3                           | 0.02%                        | 72.0                   | 7.0                             |
| 2041 - 2050                  | 10,635                          | 4                           | 0.04%                        | 80.3                   | 3.9                             |
| 2051 - 2060                  | 6,632                           | 3                           | 0.05%                        | 72.7                   | 2.7                             |
| 2061 - 2070                  | 3,114                           | 2                           | 0.06%                        | 83.0                   | 1.3                             |
| 2071 - 2080                  | 850                             | 0                           | 0.00%                        | -                      | -                               |
| 2081 +                       | 67                              | 0                           | 0.00%                        | -                      | -                               |
| Total                        |                                 | 25                          | 0.12%                        | 75.5                   | 4.9                             |



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Table 5-5 shows the estimated incidence of Alzheimer's by multi-year periods and a profile of the average ages and years played for players diagnosed with this disease. As this table shows, there will be an estimated 2,949 cases of Alzheimer's among former NFL players who have an average age of 77.9 and played an average of 4.1 years.

**Table 5-5**  
**Total Incidence and Profile for Alzheimer's, by Year**

| <b>Year of<br/>Diagnosis</b> | <b>Players Still<br/>Living</b> | <b>Number<br/>Diagnosed</b> | <b>Percent<br/>Diagnosed</b> | <b>Average<br/>Age</b> | <b>Average Years<br/>Played</b> |
|------------------------------|---------------------------------|-----------------------------|------------------------------|------------------------|---------------------------------|
| <2006                        | 21,070                          | 163                         | 0.77%                        | 73.6                   | 3.7                             |
| 2006 - 2010                  | 20,343                          | 48                          | 0.24%                        | 76.8                   | 3.8                             |
| 2011 - 2020                  | 19,699                          | 314                         | 1.59%                        | 72.7                   | 5.0                             |
| 2021 - 2030                  | 17,595                          | 431                         | 2.45%                        | 72.2                   | 4.6                             |
| 2031 - 2040                  | 14,501                          | 562                         | 3.88%                        | 75.9                   | 4.3                             |
| 2041 - 2050                  | 10,635                          | 556                         | 5.23%                        | 79.0                   | 4.3                             |
| 2051 - 2060                  | 6,632                           | 479                         | 7.22%                        | 82.1                   | 3.9                             |
| 2061 - 2070                  | 3,114                           | 296                         | 9.51%                        | 84.8                   | 3.1                             |
| 2071 - 2080                  | 850                             | 94                          | 11.06%                       | 90.1                   | 2.1                             |
| 2081 +                       | 67                              | 6                           | 8.96%                        | 95.7                   | 1.3                             |
| <b>Total</b>                 |                                 | <b>2,949</b>                | <b>14.00%</b>                | <b>77.9</b>            | <b>4.1</b>                      |

Table 5-6 shows the estimated incidence of Level 2 neurocognitive disorders by multi-year periods and a profile of the average ages and years played for players diagnosed with this disease. As this table shows, there will be an estimated 3,354 cases of Level 2 disorders diagnosed among former NFL players who have an average age of 77.2 and played an average of 4.2 years. The incidence of neurocognitive disorders was estimated using data for the incidence of dementia as a proxy for Level 2 disorders. It was also further assumed that Level 2 disorders are progressive and every case would initially be diagnosed as a Level 1.5 disorder. In this analysis, incidence of dementia were treated as Level 2 disorders and then regressed backward by 3 years to determine the onset of the Level 1.5 disorder. The result of this can be seen in Table 5-7 where the number of diagnosed cases of Level 1.5 disorders is the same 3,354 as for Level 2.0, but the average age is 3 years younger at 74.2.

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**Table 5-6**  
**Total Incidence and Profile for Level 2, by Year**

| <b>Year of<br/>Diagnosis</b> | <b>Players Still<br/>Living</b> | <b>Number<br/>Diagnosed</b> | <b>Percent<br/>Diagnosed</b> | <b>Average<br/>Age</b> | <b>Average Years<br/>Played</b> |
|------------------------------|---------------------------------|-----------------------------|------------------------------|------------------------|---------------------------------|
| <2006                        | 21,070                          | 206                         | 0.98%                        | 74.5                   | 3.5                             |
| 2006 - 2010                  | 20,343                          | 71                          | 0.35%                        | 67.4                   | 5.7                             |
| 2011 - 2020                  | 19,699                          | 334                         | 1.70%                        | 73.6                   | 5.2                             |
| 2021 - 2030                  | 17,595                          | 541                         | 3.07%                        | 75.2                   | 4.9                             |
| 2031 - 2040                  | 14,501                          | 615                         | 4.24%                        | 75.3                   | 4.3                             |
| 2041 - 2050                  | 10,635                          | 648                         | 6.09%                        | 77.5                   | 4.0                             |
| 2051 - 2060                  | 6,632                           | 537                         | 8.10%                        | 80.1                   | 4.1                             |
| 2061 - 2070                  | 3,114                           | 325                         | 10.44%                       | 83.9                   | 2.9                             |
| 2071 - 2080                  | 850                             | 72                          | 8.47%                        | 88.3                   | 1.9                             |
| 2081 +                       | 67                              | 5                           | 7.46%                        | 95.8                   | 1.4                             |
| Total                        |                                 | 3,354                       | 15.92%                       | 77.2                   | 4.2                             |

**Table 5-7**  
**Total Incidence and Profile for Level 1.5, by Year**

| <b>Year of<br/>Diagnosis</b> | <b>Players Still<br/>Living</b> | <b>Number<br/>Diagnosed</b> | <b>Percent<br/>Diagnosed</b> | <b>Average<br/>Age</b> | <b>Average Years<br/>Played</b> |
|------------------------------|---------------------------------|-----------------------------|------------------------------|------------------------|---------------------------------|
| <2006                        | 21,070                          | 237                         | 1.12%                        | 70.7                   | 3.8                             |
| 2006 - 2010                  | 20,343                          | 71                          | 0.35%                        | 61.4                   | 6.2                             |
| 2011 - 2020                  | 19,699                          | 452                         | 2.29%                        | 71.9                   | 5.0                             |
| 2021 - 2030                  | 17,595                          | 571                         | 3.25%                        | 72.3                   | 4.8                             |
| 2031 - 2040                  | 14,501                          | 631                         | 4.35%                        | 72.7                   | 4.3                             |
| 2041 - 2050                  | 10,635                          | 638                         | 6.00%                        | 75.2                   | 4.0                             |
| 2051 - 2060                  | 6,632                           | 486                         | 7.33%                        | 78.2                   | 3.7                             |
| 2061 - 2070                  | 3,114                           | 230                         | 7.39%                        | 82.4                   | 2.7                             |
| 2071 - 2080                  | 850                             | 38                          | 4.47%                        | 87.2                   | 1.4                             |
| 2081 +                       | 67                              | 0                           | 0.00%                        | -                      | -                               |
| Total                        |                                 | 3,354                       | 15.92%                       | 74.2                   | 4.2                             |

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## 6. Compensation

### Compensation of Living Former Players

The compensation amounts used in the analysis are found in Exhibit 3 to the Settlement Agreement. This Monetary Award Grid (Grid) is shown in Table 6-1 below. The Grid defines maximum amounts to be paid to former players based upon their diagnoses. These maximum amounts are then subject to adjustments based on two discount factors: (1) the player's age at the time of diagnosis, and (2) the number of years played in the NFL. These adjustment factors were considered appropriate to account for background incidence and exposure risk.

Players who are diagnosed with a compensable disease before the age of 45, and played in the NFL for 5 or more years are eligible for the maximum compensation amounts. Adjustments are made for each year above the age of 45, and there is a further reduction to the compensation amount for each half year of playing time less than 5 years.

Table 6-1 below shows the maximum amounts to be paid under the compensation matrix for each disease category at different age ranges.<sup>14</sup>

**Table 6-1**  
**Monetary Award Grid, by Age at Time of Qualifying Diagnosis**

| Age Group | ALS         | Death w/CTE | Parkinson's | Alzheimer's | Level 2     | Level 1.5   |
|-----------|-------------|-------------|-------------|-------------|-------------|-------------|
| Under 45  | \$5,000,000 | \$4,000,000 | \$3,500,000 | \$3,500,000 | \$3,000,000 | \$1,500,000 |
| 45 - 49   | \$4,500,000 | \$3,200,000 | \$2,470,000 | \$2,300,000 | \$1,900,000 | \$950,000   |
| 50 - 54   | \$4,000,000 | \$2,300,000 | \$1,900,000 | \$1,600,000 | \$1,200,000 | \$600,000   |
| 55 - 59   | \$3,500,000 | \$1,400,000 | \$1,300,000 | \$1,150,000 | \$950,000   | \$475,000   |
| 60 - 64   | \$3,000,000 | \$1,200,000 | \$1,000,000 | \$950,000   | \$580,000   | \$290,000   |
| 65 - 69   | \$2,500,000 | \$980,000   | \$760,000   | \$620,000   | \$380,000   | \$190,000   |
| 70 - 74   | \$1,750,000 | \$600,000   | \$475,000   | \$380,000   | \$210,000   | \$105,000   |
| 75 - 79   | \$1,000,000 | \$160,000   | \$145,000   | \$130,000   | \$80,000    | \$40,000    |
| 80+       | \$300,000   | \$50,000    | \$50,000    | \$50,000    | \$50,000    | \$25,000    |

Table 6-2 below shows the percentage discount applied to the compensation amounts based on the number of years played. This ranges from a zero percent discount for 5 or more playing

<sup>14</sup> Table 6-1 shows average amounts over five year ranges. The actual award grid provides different amounts for each age from 45 to 80.

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years up to a 90 percent reduction in the payment amount for those who played 0.5 years or less.<sup>15</sup>

**Table 6-2**  
**Discounts to Monetary Awards for Years Played in the NFL**

| Years Played | Discount | All Players |         |
|--------------|----------|-------------|---------|
|              |          | Count       | Percent |
| 5+           | 0%       | 7,496       | 36%     |
| 4.5          | 10%      | 62          | 0%      |
| 4.0          | 20%      | 1,449       | 7%      |
| 3.5          | 30%      | 115         | 1%      |
| 3.0          | 40%      | 1,719       | 8%      |
| 2.5          | 50%      | 221         | 1%      |
| 2.0          | 60%      | 2,209       | 10%     |
| 1.5          | 70%      | 511         | 2%      |
| 1.0          | 80%      | 5,041       | 24%     |
| 0.5          | 90%      | 2,247       | 11%     |
| Total        |          | 21,070      | 100%    |

*The Effect of Age, Years Played in the NFL and Inflation on Settlement Amounts*

The Settlement Agreement provides maximum monetary awards to players who are less than 45 years old when they are diagnosed with a compensable disease and have played in the NFL for 5 or more years. There is a reduction in the compensation levels based on age and years played beginning with players age 45 or older and players with less than 5 years of experience in the NFL. The Settlement Agreement also provides for an escalation in the compensation amounts to adjust for inflation. These adjustments have a significant effect on the average amount of compensation paid to the former players and a corresponding significant effect on the total compensation paid by the fund.

The magnitude of the effect of age, playing time and inflation depends heavily on the average age of the players when contracting a compensable disease, the number of years the individual played in the NFL and the year the disease is contracted. Table 6-3 summarizes these variables.

<sup>15</sup> Players who played on practice squads were assigned 0.5 years of eligible playing time for each year on a practice squad. The Settlement Agreement applies a 97.5% reduction for players with no eligible seasons. I have assumed that all players have at least 0.5 years played.

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The table shows the average age at the time of diagnosis with the most serious disease is approximately 77 years of age for both groups. Therefore due to the average age at the time of onset of the disease, compensation amounts are subject to significant reductions from the maximum awards.

Table 6-3 also shows that 60% of all players estimated to receive compensation have fewer than the 5 years needed to receive the maximum monetary award. The years played variable shows that the players that have already filed have significantly more years played in the NFL than the future filers.

**Table 6-3**  
**Selected Characteristics of Former Players:**  
**Age, Years Played and Year of Contracting Disease/Injury**

| Player Category | Age At:          |                             | Years Played                                     |                      | Year of Most Serious Injury |
|-----------------|------------------|-----------------------------|--------------------------------------------------|----------------------|-----------------------------|
|                 | 2014 or at Death | Year of Most Serious Injury | Percent of Players with Less Than 5 Years Played | Average Years Played |                             |
| Already Filed   | 52.0             | 76.3                        | 35%                                              | 6.3                  | 2037                        |
| Future Filer    | 51.2             | 77.7                        | 73%                                              | 3.5                  | 2039                        |
| All Filers      | 51.4             | 77.4                        | 60%                                              | 4.4                  | 2039                        |

Table 6-4 shows the effect of these adjustments for age and years played. Without any adjustments, players would be compensated at the maximum value for their injury – shown in the table as the Maximum Monetary Award.

**Table 6-4**  
**Effect of Age, Years Played and Inflation on Average and Total Compensation**  
**by Injury Category**

| Most Serious Injury/ Disease | Maximum Monetary Award | Value After Age Adjustment |                                  | Value After Age and Years Played Adjustment |                                  | Actual Final Value |                                  |
|------------------------------|------------------------|----------------------------|----------------------------------|---------------------------------------------|----------------------------------|--------------------|----------------------------------|
|                              |                        | Average Payment            | Total Compensation (\$ millions) | Average Payment                             | Total Compensation (\$ millions) | Average Payment    | Total Compensation (\$ millions) |
| Compensable Injury/Disease   |                        |                            |                                  |                                             |                                  |                    |                                  |
| ALS                          | \$5,000,000            | \$2,930,000                | \$52.8                           | \$2,120,000                                 | \$38.1                           | \$2,740,000        | \$49.4                           |
| Death w/CTE                  | \$4,000,000            | \$1,910,000                | \$85.8                           | \$1,440,000                                 | \$64.9                           | \$1,440,000        | \$64.9                           |
| Parkinson's                  | \$3,500,000            | \$320,000                  | \$4.5                            | \$190,000                                   | \$2.7                            | \$230,000          | \$3.2                            |
| Alzheimer's                  | \$3,500,000            | \$340,000                  | \$593.8                          | \$190,000                                   | \$340.7                          | \$270,000          | \$474.9                          |
| Level 2                      | \$3,000,000            | \$210,000                  | \$368.8                          | \$140,000                                   | \$246.5                          | \$190,000          | \$341.0                          |
| Level 1.5                    | \$1,500,000            | na                         | na                               | na                                          | na                               | na                 | na                               |
| Total, Compensable           | na                     | na                         | \$1,105.7                        | na                                          | \$693.0                          | na                 | \$933.4                          |

Note: All Level 1.5 are assumed to progress to Level 2. All compensation categorized by most serious injury

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For example, the average payment for diagnosed cases of ALS is \$2.93 million rather than the maximum award amount of \$5 million - a 40% reduction. The average age-adjusted payment for players being diagnosed with Alzheimer's is \$0.34 million, about 90% less than the maximum award amount of \$3.5 million.

Adjusting for years played has a less substantial effect on award values after the age adjustment. For example as Table 6-4 shows, for former players diagnosed with ALS the average payment after the adjustment for number of years played is \$2.1 million – a 28% reduction. The average payment to players diagnosed with Alzheimer's disease is reduced from \$0.34 million to \$0.19 million.

Finally, adjusting for inflation increases average and total compensation. Again, as Table 6-4 shows, adjusting for inflation increases average payments by approximately 30% for ALS and 40% for Alzheimer's, 20% for Parkinson's, no change for death with CTE and approximately 40% for Level 2 neurocognitive disorders. However, the actual final average award amounts for each disease are significantly below the maximum monetary award amounts, resulting in an inflation adjusted total compensation amount of \$933.4 million.

Table 6-5 shows the Monetary Award Grid as it would apply to players who played 3 years in the NFL, *i.e.*, after the discount for 3 playing years is applied. As this table shows, the maximum compensation amounts are 40% lower than the Maximum Award Grid for players who played 5 years or more.

**Table 6-5**  
**Monetary Award Grid, for Players who Played 3 years in NFL at Time of Qualifying Diagnosis<sup>1</sup>**

| Age Group | ALS         | Death w/CTE | Parkinson's | Alzheimer's | Level 2     | Level 1.5 |
|-----------|-------------|-------------|-------------|-------------|-------------|-----------|
| Under 45  | \$3,000,000 | \$2,400,000 | \$2,100,000 | \$2,100,000 | \$1,800,000 | \$900,000 |
| 45 - 49   | \$2,700,000 | \$1,920,000 | \$1,480,000 | \$1,380,000 | \$1,140,000 | \$570,000 |
| 50 - 54   | \$2,400,000 | \$1,380,000 | \$1,140,000 | \$960,000   | \$720,000   | \$360,000 |
| 55 - 59   | \$2,100,000 | \$840,000   | \$780,000   | \$690,000   | \$570,000   | \$290,000 |
| 60 - 64   | \$1,800,000 | \$720,000   | \$600,000   | \$570,000   | \$350,000   | \$170,000 |
| 65 - 69   | \$1,500,000 | \$590,000   | \$460,000   | \$370,000   | \$230,000   | \$110,000 |
| 70 - 74   | \$1,050,000 | \$360,000   | \$290,000   | \$230,000   | \$130,000   | \$60,000  |
| 75 - 79   | \$600,000   | \$100,000   | \$90,000    | \$80,000    | \$50,000    | \$20,000  |
| 80+       | \$180,000   | \$30,000    | \$30,000    | \$30,000    | \$30,000    | \$15,000  |

<sup>1</sup>Assumes no other offsets for stroke, TBI, or non-participation in BAP.

Table 6-6 shows the estimated average value of monetary awards that will be paid for each disease across the various age groups. These average awards take into account both the age discount and the years played discount.

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**Table 6-6**  
**Average Monetary Awards by Age Group at Time of Qualifying Diagnosis for All Players, Fully Discounted**

| Age Group | ALS         | Death w/CTE | Parkinson's | Alzheimer's | Level 2     | Level 1.5   |
|-----------|-------------|-------------|-------------|-------------|-------------|-------------|
| Under 45  | \$2,860,000 | \$2,870,000 | na          | \$1,600,000 | \$2,980,000 | \$1,490,000 |
| 45 - 49   | \$2,390,000 | \$3,490,000 | na          | \$1,160,000 | \$1,540,000 | \$770,000   |
| 50 - 54   | \$2,160,000 | \$1,810,000 | \$452,000   | \$740,000   | \$830,000   | \$420,000   |
| 55 - 59   | \$610,000   | \$2,120,000 | \$1,420,000 | \$500,000   | \$490,000   | \$250,000   |
| 60 - 64   | \$1,060,000 | \$670,000   | na          | \$430,000   | \$310,000   | \$160,000   |
| 65 - 69   | \$520,000   | \$1,100,000 | \$200,000   | \$270,000   | \$140,000   | \$70,000    |
| 70 - 74   | \$470,000   | \$550,000   | \$100,500   | \$150,000   | \$80,000    | \$40,000    |
| 75 - 79   | \$280,000   | \$160,000   | \$106,800   | \$50,000    | \$20,000    | \$10,000    |
| 80+       | \$50,000    | \$40,000    | \$22,500    | \$10,000    | \$10,000    | \$10,000    |

<sup>1</sup>Note the analysis assumes that all Level 1.5 claimants progress to more serious injuries. Thus all Level 1.5 amounts are fully netted against the amounts computed for the players ultimate most serious injury.

na - No former players were in this age/injury category

Table 6-7 shows the estimated total amount of the monetary awards that will be paid for each disease in each age group. These total award amounts take into account both the age discount and the years played discount.

**Table 6-7**  
**Total Monetary Awards by Age Group at Time of Qualifying Diagnosis for All Players, Fully Discounted**

| Age Group | ALS          | Death w/CTE  | Parkinson's | Alzheimer's  | Level 2      | Level 1.5 <sup>1</sup> |
|-----------|--------------|--------------|-------------|--------------|--------------|------------------------|
| Under 45  | \$17,140,000 | \$22,980,000 | na          | \$43,100,000 | \$50,650,000 | \$25,330,000           |
| 45 - 49   | \$7,180,000  | \$13,950,000 | na          | \$37,250,000 | \$16,890,000 | \$8,450,000            |
| 50 - 54   | \$6,490,000  | \$10,840,000 | \$452,000   | \$43,800,000 | \$20,630,000 | \$10,320,000           |
| 55 - 59   | \$610,000    | \$6,370,000  | \$1,420,000 | \$62,570,000 | \$32,540,000 | \$16,270,000           |
| 60 - 64   | \$4,220,000  | \$2,010,000  | na          | \$58,350,000 | \$38,440,000 | \$19,220,000           |
| 65 - 69   | \$2,080,000  | \$5,490,000  | \$600,000   | \$58,140,000 | \$45,420,000 | \$22,710,000           |
| 70 - 74   | \$1,890,000  | \$2,740,000  | \$402,000   | \$45,220,000 | \$31,060,000 | \$15,530,000           |
| 75 - 79   | \$280,000    | \$1,140,000  | \$534,000   | \$23,350,000 | \$12,990,000 | \$6,500,000            |
| 80+       | \$250,000    | \$210,000    | \$225,000   | \$20,810,000 | \$17,460,000 | \$8,730,000            |

<sup>1</sup>Note the analysis assumes that all Level 1.5 claimants progress to more serious injuries. Thus all Level 1.5 amounts are fully netted against the amounts computed for the player's ultimate most serious injury.

na - No former players were in this age/injury category

## Examples of Monetary Award Calculations

In order to illustrate how the monetary award computation is applied, several hypothetical cases are presented in the following tables. For simplicity, it is assumed that the diagnosis occurs in 2013 or earlier. This means that the nominal amounts are not inflated since the inflation adjustment starts in 2014. These examples show the following four cases:



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Table 6-8A shows the monetary award calculation in the case of a 40-year-old player who had 7 playing years and was diagnosed with Alzheimer's with no prior history of stroke or TBI. In this case, there would be no age or years played discount and no joint causality discount, so the player would receive the maximum matrix award value.

**Table 6-8A**  
**Example of Monetary Award Calculation**

Case: 40 years old, 7 years playing, Alzheimer's diagnosis, no Prior Stroke or TBI

|                                           | <u>%</u>  | <u>Amount</u> |
|-------------------------------------------|-----------|---------------|
| Maximum Disease Compensation              | 100%      | \$3,500,000   |
| Less: Age Discount                        | 0%        | \$0           |
| Less: Years Played Discount               | 0%        | \$0           |
| Less: Prior Stroke/TBI Discount           | <u>0%</u> | <u>\$0</u>    |
| Final Award (% of Maximum/Payment Amount) | 100%      | \$3,500,000   |

Table 6-8B shows the monetary award calculation in the case of a 57-year-old who played in the NFL for 3.5 years and was diagnosed with Alzheimer's with no prior history of stroke or TBI. In this case, an age discount of 67% is applied and there is a discount for years played of 30%. The resulting payment would be 23% of the full matrix value (a 77% discount from maximum value).

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**Table 6-8B**  
**Example of Monetary Award Calculation**

Case: 57 years old, 3.5 years playing, Alzheimer's diagnosis, no Prior Stroke or TBI

|                                           | <u>%</u> | <u>Amount</u> |
|-------------------------------------------|----------|---------------|
| Maximum Disease Compensation              | 100%     | \$3,500,000   |
| Less: Age Discount                        | -67%     | -\$2,350,000  |
| Less: Years Played Discount               | -30%     | -\$345,000    |
| Less: Prior Stroke/TBI Discount           | <u>0</u> | <u>\$0</u>    |
| Final Award (% of Maximum/Payment Amount) | 23%      | \$805,000     |

Table 6-8C shows the monetary award calculation in the case of a 62-year-old who played in the NFL for 2 years and was diagnosed with Alzheimer's with no prior history of stroke or TBI. In this case, an age discount of 73% is applied and there is a discount for years played of 60%. The resulting payment would be 11% of the full matrix value (an 89% discount from maximum value).

**Table 6-8C**  
**Example of Monetary Award Calculation**

Case: 62 years old, 2 years playing, Alzheimer's diagnosis, no Prior Stroke or TBI

|                                           | <u>%</u> | <u>Amount</u> |
|-------------------------------------------|----------|---------------|
| Maximum Disease Compensation              | 100%     | \$3,500,000   |
| Less: Age Discount                        | -73%     | -\$2,550,000  |
| Less: Years Played Discount               | -60%     | -\$570,000    |
| Less: Prior Stroke/TBI Discount           | <u>0</u> | <u>\$0</u>    |
| Final Award (% of Maximum/Payment Amount) | 11%      | \$380,000     |

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Table 6-8D shows the monetary award calculation in the case of a 72-year-old who played in the NFL for 10 years and was diagnosed with Alzheimer's with no prior history of stroke or TBI. In this case, an age discount of 89% is applied and there is no discount for years played because he played more than 5 years. The resulting payment would be 3% of the full matrix value (a 97% discount from maximum value).

**Table 6-8D**  
**Example of Monetary Award Calculation**

Case: 72 years old, 10 years playing, Alzheimer's diagnosis, with Prior Stroke

|                                           | <u>%</u>    | <u>Amount</u>     |
|-------------------------------------------|-------------|-------------------|
| Maximum Disease Compensation              | 100%        | \$3,500,000       |
| Less: Age Discount                        | -89%        | -\$3,120,000      |
| Less: Years Played Discount               | 0%          | \$0               |
| Less: Prior Stroke/TBI Discount           | <u>-75%</u> | <u>-\$285,000</u> |
| Final Award (% of Maximum/Payment Amount) | 3%          | \$95,000          |

## 7. Cost Estimate

The analysis forecasts that a total of 3,596 former NFL players who participate in the settlement will contract compensable diseases over the life of the program. The majority of these compensable diseases, about 98%, will be cases of Alzheimer's or Level 2 neurocognitive disorders. The total nominal cost for all compensable diseases including administration costs is estimated to be \$933 million over the life of the program.

### *Total Compensable Claims and Compensation*

Table 7-1 provides a summary of compensable claims and total compensation by type of injury. The overwhelming percent of compensable claims and compensation are paid to former players with Alzheimer's disease or Level 2 neurocognitive disorders – 98% of compensable claims and 87% of compensation. The distribution of claims reflects the relative probabilities of the occurrence of the various diseases in the general population combined with the additional incidence related to concussions.

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**Table 7-1**  
**Former Players with Compensable Concussion-Related Injury**  
**by Type of Injury with Total Compensation**  
**(\$ millions)**

| Most Serious Injury/ Disease | Total Claims |         | Total Compensation |         |
|------------------------------|--------------|---------|--------------------|---------|
|                              | Count        | Percent | Amount             | Percent |
| Compensable Injury/Disease   |              |         |                    |         |
| ALS                          | 18           | 0.5%    | \$49.4             | 5.3%    |
| Death w/CTE                  | 46           | 1.3%    | \$64.9             | 7.0%    |
| Parkinson's                  | 14           | 0.4%    | \$3.2              | 0.3%    |
| Alzheimer's                  | 1,757        | 48.9%   | \$474.9            | 50.9%   |
| Level 2                      | 1,761        | 49.0%   | \$341.0            | 36.5%   |
| Level 1.5                    | na           | na      | na                 | na      |
| Total, Compensable           | 3,596        | 100.0%  | \$933.4            | 100.0%  |
| Not Compensated              | 17,474       | na      | na                 | na      |
| Grand Total                  | 21,070       | na      | \$933.4            | 100.0%  |

Note: All compensation categorized by most serious injury. All Level 1.5 claims are assumed to progress to Level 2 and more serious levels. \$248 million is paid to former players at Level 1.5. This amount is included in the category of their most serious disease as follows: \$212 million paid at Level 2; \$34 million to Alzheimer's and \$2 million to other disease types. Players are not compensated because they did not experience a compensable injury or did not file a claim.

#### *Timing of Compensation Payments and Funding*

Table 7-2 shows the timing of payments to former players and the receipt of funding by the settlement fund through the payment of the last compensable claim. The timing and total amount of funding are sufficient to pay all claims.

- Compensation payments in the first five years are high because there are a relatively large number of former NFL players who have indicated they intend to file a claim. These claimants include former players who have already been diagnosed with a disease and will be paid in the first few years of the settlement fund. After these claims are resolved, the fund will be receiving and paying claims at a significantly lower rate as the filing of future claims depends on the timing of the manifestation of future compensable injuries.
- The initial funding amount of approximately \$364 million (55% of the total funding) is designed to provide enough assets to pay the compensable claims already identified and to cover the startup costs of the claim processing facility while still leaving a significant

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asset. The remaining assets are supplemented with an additional \$311 million, which is paid in annual installments through 2033. At that time the remaining assets of the settlement fund (with earnings) are sufficient to pay all remaining claims.

- The Fund Balance increases through 2034 as the additional funding and earnings exceed the required amount to pay claims. The fund balance begins to decline after that as the settlement fund continues to pay claims, but with earnings as its only source of revenue - there is no additional funding contributed after 2033. The last claim is paid in the early 2080s, at which time the fund is estimated to have a balance of approximately \$80 million.<sup>16</sup>

**Table 7-2**  
**Settlement Fund Compensation Payments, Funding and Earnings**  
**Through the Payment of the Last Compensable Claim**  
**(\$ millions)**

| Time Period        | Compensation<br>Amount <sup>1</sup> | Funding | Earnings | End of Period<br>Fund<br>Balance |
|--------------------|-------------------------------------|---------|----------|----------------------------------|
| 2014 through 2018  | \$292.3                             | \$364.0 | \$25.0   | \$91.6                           |
| 2019 through 2023  | \$78.2                              | \$103.7 | \$28.1   | \$143.8                          |
| 2024 through 2028  | \$95.5                              | \$103.7 | \$38.6   | \$189.0                          |
| 2029 through 2038  | \$178.6                             | \$103.7 | \$103.2  | \$214.0                          |
| 2039 through 2048  | \$167.7                             | \$0.0   | \$72.9   | \$116.2                          |
| Remaining 35 Years | \$133.3                             | \$0.0   | \$103.4  | \$80.4                           |
| Total              | \$945.5                             | \$675.0 | \$371.2  | na                               |

<sup>1</sup>Includes processing Costs

Note: Funding plus earnings is actually slightly in excess of the amount needed to pay all claims.

### *Inflation and Real Rate of Return*

A key assumption in determining whether the settlement is adequately funded is the real rate of return earned on settlement assets. I have assumed a 2.5% real rate of return – a 4.5% nominal yield and an underlying 2.0% inflation rate. The actual expected return is dependent on the real returns available for different types of assets and the portfolio mix adopted by the settlement administrators.

<sup>16</sup> The \$80 million balance in the early 2080s implies overfunding of only approximately \$5 million at 2014 levels.

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Historical experience suggests that a real rate of return of 2.5% is at the lower level of expected returns. Returns on debt and equity both exceed 2.5% real rate of return over long periods of time. Indeed, even an extremely high reliance on low risk financial assets historically has yielded more than 2.5% annually. However, because of historically low bond yields in recent years, I conservatively assumed a 2.5% return.

Studies of real rates of return reflect that over long periods of time through recent years, the real rate of return (after inflation) on long-term U.S. government bonds was approximately 3.4% annually; municipal bonds yielded approximately 3.9% real return annually and equities of different categories yielded 5-6% in real return annually. Thus, any mixed portfolio of equities and long-term government bonds would have yielded a 4% to 5% annual return in real terms.

The average annualized real return for a 50% equity/50% bond portfolio over the last 80+ years both for expansionary periods and for recessions exceeds 2.5%. Indeed, the average annual real return for recessions is 5.26%, while for expansions, it is 5.59%.

Finally, an examination of mutual funds (and among them, focusing on the ones with conservative asset allocation) shows that the overwhelming majority (98.3%) of funds returned at least 2.5% in real terms over the last five years.<sup>17</sup>

#### *Timing of Claim Payments*

There will be a time lag between the time a claim is filed and the date of disbursement of compensation. To allow for claims to be reviewed, processed (including the curing of any deficiencies) and paid, the analysis assumes that payments for all the claims filed within any given calendar year will be paid within 24 months (an average of 12 months) based on the following distribution of claim payments:

- 30% will be paid in the year the claim is filed
- 40% will be paid in the year after the claim was filed
- 30% will be paid in the second year after the claim was filed.

The analysis assumes that all of the claims that have already been filed and have diagnoses or the player is deceased will be paid - 70% in 2015 and 30% in 2016<sup>18</sup>.

The model is based on a nominal rate of return on invested funds of 4.5%. Inflation over the life of the fund is assumed to be 2.0% per year and this rate is applied to future monetary award amounts as well as administration costs.

<sup>17</sup> References: David Blanchett, Michael Finke and Wade D. Pfau (2013), "Low Bond Yields and Safe Portfolio Withdrawal Rates," Morningstar Investment Management, January 21, 2013; Joseph Davis and Daniel Piquet (2011), "Recessions and balanced portfolio returns," Vanguard, October 2011, and; Thornburg Investment Management (2013), "A Study of Real Real Returns," July 2013.

<sup>18</sup> A 95% participation rate assumption is applied to claims already filed that do not have a current diagnosis.

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*Administration Costs*

Based on information provided by the Claims Administrator and the CMS Lien Administrator, the following costs have been included in the cash flow modeling:

- Start-up costs – a total of \$2 million in start-up costs for the Monetary Award Fund are assumed to occur in 2014.
- Claim review and processing costs – an average cost of \$750 per claim including both valid claims and claims that will not be paid are assumed to be incurred at the time of diagnosis for valid claims. It is assumed that there will be an equal number of valid and invalid claims. Therefore the model applies a combined total cost of \$1,500 to each valid claim.
- CMS lien processing – there will be a \$100 processing charge to the MAF applied to each claim, which is applied to both valid and invalid claims. It is assumed that there will be an equal number of valid and invalid claims. Therefore, the model applies a combined total cost of \$200 to each valid claim. All other costs for CMS lien handling are charged against individual monetary awards and does not affect the cash flow of the settlement fund.
- Payments to the Special Master of \$100,000 per year for five years.

*Player Participation Rates*

The participation rate in the Settlement program among eligible former NFL players is a significant factor in determining the number of claims that will be filed and thus also the amount of funds required to resolve the claims.

In order to establish an estimate of the participation rate, several factors were considered. First, experience with participation rates in other mass tort cases was reviewed. In general, participation rates in mass torts are dependent on the outreach and notice program, the lag from exposure/injury to the manifestation of a compensable disease/injury and award size. For comparison, the participation rates for various large and widely publicized class action settlements and data on consumer product recall response rates were considered:

- Breast implant settlement achieved registrations from 30% of the eligible class members (440,000 of 1.5 million), based on an advertising-only class notification program.
- Consumer product recall response rates range from 4% to 18% according to the U.S. Consumer Product Safety Commission (CPSC).

In the case of former NFL players, approximately 4,200 claims were already registered at the time this analysis was prepared, which represents more than 20% of the potentially eligible population of approximately 20,200 former players.<sup>19</sup> I understand that former players have been

<sup>19</sup> Additional claims have been filed since this analysis was performed.



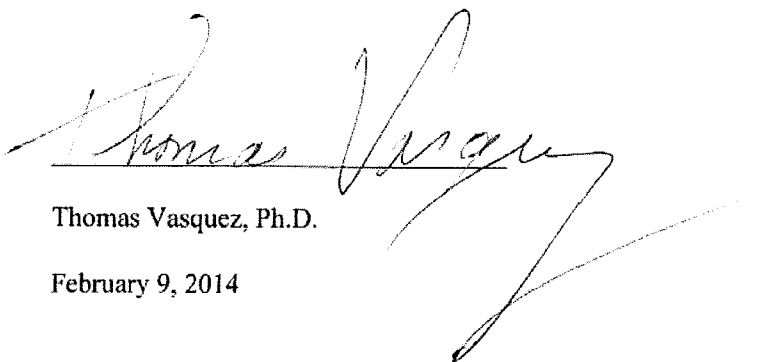
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and continue to be contacted by plaintiff lawyers and others to participate. Whether continuing further efforts are likely to attract a significant number of additional players is not certain.

Nonetheless, it is assumed that the participation rates in this settlement will achieve high levels because the settlement has very high public visibility and contact information available through the NFL Players union and other sources that can be used in the notification process is available for a large portion of the potentially eligible population. My forecast of the number of future claims and the resulting cash requirements to fund the settlement assumes that: (1) 100% of deceased players with CTE will participate, (2) 20% of players deceased from 2000 through 2005 will participate, (3) 100% of players with a diagnosis that have already filed claims will participate, (4) 95% of players without a diagnosis that have already filed a claim will participate and (5) 50% of the living and deceased former NFL players that have not yet filed will ultimately participate. These assumptions yield an approximately 60% participation rate for all potentially eligible former players.

The Settlement Agreement provides a Baseline Assessment Program (BAP) for players who participate in the settlement. However, if a player (who is not yet diagnosed with a compensable disease) registers to participate in the Settlement Agreement but does not participate in the baseline assessment provided for under the BAP, a 10% discount is applied to any future monetary award for a compensable disease. This analysis assumed that all players who participate in the Settlement Agreement will also participate in the BAP and therefore no discounts were applied to future compensation awards.

My work on this matter is ongoing. I reserve the right to update or expand upon the opinions expressed in this report on the basis of that work, and in response to any analysis put forth by other experts.



Thomas Vasquez, Ph.D.

February 9, 2014

## Appendix A: Determination of Incidence Rates

### *Background Incidence*

This section describes ARPC's methodology and reference sources used to determine background incidence rates of diseases that might be associated with concussions and other repetitive head injuries, and therefore, potentially considered as a compensable disease. When incidence rates were available by gender, we captured the rates for men only. For some diseases, rates were not available by gender; in these cases the reported statistics are for both genders.

### *Extrapolating to younger ages*

For some diseases, incidence (or prevalence) rates were available only for the population above a certain age (*e.g.*, 65). In these cases, we assumed that the rate for a 20-year-old would be equal to one-hundredth of the rate for a 65-year-old. For ages between 20 and 65, we assumed that the rate increases exponentially.

The literature indicates that diseases associated with advanced age (*e.g.*, Alzheimer's and dementia), rarely occur in young age, and reliable statistics for young ages are not available.

### *Exponential smoothing*

Diseases for which there were estimates of incidence available for various age ranges instead of a particular age, a midpoint in the age range was chosen (in the case of ages 85+, typically age 90 was used), and the estimated incidence rate for that age group was assigned to that midpoint. Between data points, an exponential curve was fit based on the starting and ending rates, and the number of years in between them.

### *Stroke-Related Alzheimer's disease and Dementia*

Alzheimer's disease and dementia can sometimes be attributed to prior history of stroke. According to epidemiological research, 8 to 10 percent of Alzheimer's and dementia patients had a history of stroke prior to the onset of Alzheimer's or dementia. Claimants who fall into this category will receive 25 percent of the compensation they would receive if they had not had a prior history of stroke. To reflect the reduction in the total compensation amount, the overall incidence numbers for Alzheimer's and dementia were reduced by a number equal to 75 percent of those who also had prior history of stroke (*i.e.*, only a quarter of those with a stroke history are included in the background incidence).

## ***References***

- Dodge, Chang, Kamboh, Ganguli (2011), “Risk of Alzheimer’s Disease Incidence Attributable to Vascular Disease in the Population,” *Alzheimers Dement.* 2011 May; 7(3): 356–360

## ***Approach and Reference Sources for Specific Conditions***

### **1. Alzheimer’s Disease**

Table 1 of Hebert, et al. (2001) provides the estimated annual number of incidence cases from 1995 through 2050 by age group. Figures for 2010 were used in the life cycle model. Estimates were available for the following three age categories: 65-74, 75-84, and 85+. To calculate an estimate for age categories between 20 and 65, an exponential extrapolation method was used, by also assuming that the rate for a 20-year-old was one hundredth of the rate for a 65-year-old. No gender-specific rates were available therefore the statistics are for both genders. However, many studies of the age-specific incidence (development of new cases) of Alzheimer’s disease or any dementia have found no significant difference by gender.

As noted earlier, a final modification was made to the incidence rates based on the number of Alzheimer’s disease patients who have had a stroke history to account for joint causality.

## ***References***

- Alzheimer’s Association, “2013 Alzheimer’s Disease Facts and Figures,” 2013
- Hebert, Beckett, Scherr, and Evans, “Annual Incidence of Alzheimer’s Disease in the United States Projected to the Years 2000 Through 2050,” *Alzheimer’s Disease and Associated Disorders* 2001; Vol. 15, No. 4, pp. 169–173

### **2. ALS**

An overall incidence rate was reported from two sources, both citing the same figure: 2 per 100,000 persons per year. While ALS can be diagnosed at any age, typically it is diagnosed between age 40 and 70. Hence, it was assumed that the rate is constant 2/100,000 for ages between 40 and 70. For under age 40, the extrapolation to younger ages was performed, as

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described above. For over age 70, the incidence rate was assumed to be 2/100,000. No gender-specific rates were available therefore the statistics are for both genders.

### **References**

- ALS Association, “Epidemiology of ALS and Suspected Clusters,” retrieved from <http://www.alsa.org/als-care/resources/publications-videos/factsheets/epidemiology.html> on July 1, 2013.
- The Robert Packard Center for ALS at Johns Hopkins, “ALS Facts and Statistics”, retrieved from [http://www.alscenter.org/living\\_with\\_als/facts\\_statistics.html](http://www.alscenter.org/living_with_als/facts_statistics.html) on July 15, 2013.
- Statistics Brain, “Lou Gehrig’s Disease ALS Statistics” retrieved from <http://www.statisticbrain.com/lou-gehrigs-disease-als-statistics/> on June 25, 2013.
- Clark, Pritchard and Sunak, “The Epidemiology and Etiology of Amyotrophic Lateral Sclerosis: An Integrated and Inter-Disciplinary Perspective”, *A Working Report to the Department of Public Health, State of Massachusetts* on behalf of the ALS Therapy Development Foundation, Massachusetts, page 2 of 106 retrieved from [http://www.researchals.org/uploaded\\_files/mdph\\_alsreport\\_211aDS.pdf](http://www.researchals.org/uploaded_files/mdph_alsreport_211aDS.pdf) on June 25, 2013.

### **3. Parkinson’s Disease**

The incidence rates for Parkinson’s disease were obtained from a study by Van Den Eeden et al. (2003), which examined newly diagnosed Parkinson’s disease cases in 1994-1995 among members of the Kaiser Permanente Medical Care Program of Northern California. Table 2 of the study provides annual incidence rates by age and gender. The statistics we use are for men only.

### **References**

- Van Den Eeden, Tanner, Bernstein, Fross, Leimpeter, Bloch, and Nelson, “Incidence of Parkinson’s Disease: Variation by Age, Gender, and Race/Ethnicity,” *Am. J. Epidemiol.* 2003; 157 (11): 1015–1022

### **4. Dementia**

Incidence rates were available from multiple sources for dementia. In particular, the following sources were used:

- Corrada, et al. (2010); Table 2; Incidence rates for 4 specific age groups; US – men only
- Fitzpatrick, et al. (2004); Table 1; Incidence rates for 4 specific age groups; US – white men only
- Ganguli, et al. (2000); Table 1; Incidence rates for 6 specific age groups; US – men only; more severe dementia with CDR $\geq$ 1.0
- Hendrie, et al. (2001); Table 5; Incidence rates for 3 specific age groups; African Americans in US – both sexes
- Knopman, et al. (2006); Table 1; Incidence rates for 9 specific age groups; US – men only
- Jorm and Jolley (1998); Table 2; Incidence rates for 5 specific age groups; US – both sexes; moderate+ dementia
- Riedel-Heller, et al. (2001); Table 1 and 2; Incidence rates for 4 specific age groups; Germany – men only

After careful examination of these data sources, the rates reported by Corrada, et al. (2010) and Knopman, et al. (2006) appeared to be outliers relative to the other sources. Therefore, these two studies were excluded and average age-specific incidence rates were calculated on the basis of the other five studies. As indicated above, all of these sources reported age-specific rates, but only for people older than 65. To estimate incidence rates for people younger than 65, Harvey et al. (2003) was used. This study reported age-specific prevalence rates for the population between 30 and 65. These prevalence rates were very small (each of them significantly smaller than the incidence rates for each of the age categories above 65). Since for a terminal (*i.e.*, incurable) disease such as dementia, prevalence is always an upper bound for incidence, we assumed that incidence rates for the population below 65 is equal to the prevalence rate.

A modification was made to these dementia incidence rates because of the relationship between Alzheimer's disease and dementia. Alzheimer's disease is the most common type of dementia, and eventually all Alzheimer's patients will develop dementia. However, not all dementia is due to Alzheimer's disease.<sup>20</sup> Thus, the calculated overall dementia incidence rates shown above in figure 2.1 include all cases of Alzheimer's disease. To correct for this, the Alzheimer's disease incidence rates were subtracted from the overall dementia incidence rates. Consistent with Friedenber (2003), exclusion of Alzheimer's disease incidence approximately halved the calculated incidence of dementia – for example, at age 95, the 4.103% Alzheimer's incidence rate was subtracted from the overall dementia incidence rate of 9.57%, resulting in a non-Alzheimer's dementia incidence rate of 5.467%.

As noted above in the general remarks, a final modification was made to the incidence rates based on the number of dementia patients who have had a stroke history.

<sup>20</sup> One study, by Friedenber (2003), found that patients with Alzheimer's disease comprised approximately 50% of all dementia cases, with Lewy dementia and frontotemporal dementia each comprising approximately 15% of total dementia cases, and vascular dementia comprising a further 10% of all dementia cases.

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## Induced Incidence/Risk Multiplier

This section describes the methodology and sources used for estimating the increased risk to professional football players (or comparables) relative to the general population of developing certain compensable diseases.

For Alzheimer's disease, Parkinson's, ALS and dementia, a risk multiple of 2.0 for ages 20 through 60 was used. After age 60, it was assumed that the relative risk is more additive in nature than multiplicative, and so the induced incidence is calculated as the background (general population) incidence at those ages, plus the induced incidence rates at age 60 for each of the diseases

For each of the particular diseases discussed below, there were multiple sources reporting a risk to professional football players as a multiple of the risk experienced by the general population. Unless otherwise specified, risk multiples are uniform across ages (e.g., the relative risk is the

same across ages for professional football players). For the majority of diseases, no peer-reviewed published research on the risk to professional football players relative to the general population has been identified.

It is clear that the literature and studies to date conclude a wide range of estimates of the relative risk associated with concussion or other forms of brain injury. The results vary from relative risk significantly under 1.0 to risks in excess of 3.0. Many if not all of the studies have issues that question their accuracy. These issues include items such as small sample sizes, types of populations, types of injuries and characteristics of the studied population.

### *Specific diseases, disorders, injuries, and symptoms*

#### **5. Alzheimer's Disease**

There were two sources identified that report the relative risk of Alzheimer's for professional football players (Guskiewicz (2005) and Lehman (2012)) and three studies on the risk from mild traumatic brain injuries for developing Alzheimer's disease. The induced incidence rates reported in these studies range from 0.76 to 4.1. Lehman (2012) reported that the risk of Alzheimer's being a contributing factor to death, *i.e.*, not necessarily the underlying cause, was 3.86 times greater for former NFL players who had played 5 years or more than for the general population. Guskiewicz (2005) noted a differential in the risk as a function of age, with the risk declining from 4 among younger players to 1 for players over the age of 75.

Mortimer (1991), in a meta-analysis of 7 previous studies, found a relative risk of 2.67 for men. Nemetz (1999) found that the standardized incidence ratio was 1.4 for men who had experienced a traumatic brain injury, from a population cohort in Olmsted County, Minnesota. Mehta (1999), using a population cohort from Rotterdam, The Netherlands, found a relative risk for men of 0.9. Plassman (2000), in a population-based cohort study of U.S. World War II veterans, found a hazard ratio for those who suffered a mild head injury (defined as a "loss of consciousness or post-traumatic amnesia for less than 30 minutes, with no skull fracture") of 0.76. Schofield (1997), in a community longitudinal study in Manhattan, NY, found a relative risk of developing Alzheimer's of 4.1 for those who had a history of head injury.

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## 6. ALS

There was no study that directly isolated the induced risk of ALS among former NFL players. The findings of three studies reported estimated induced incidence ranging from 1.13 to 4.31. These include the Lehman study (Lehman (2012)), which looked at ALS as a contributing factor (*i.e.*, not necessarily the specific cause of death) for a more exposed population of retired professional football players – those who had played 5 years or more. From the Schmidt (2010) study of veterans, we calculated a risk multiple of 1.13 for veteran suffering head injuries developing ALS relative to those without head injuries.<sup>21</sup> No age-breakdowns were available from Lehman (2012) or Schmidt (2010) (although Schmidt did provide a breakdown for the age at the time of the last injury, with those being injured after age 29 being at a 1.49 times risk). Chio (2005) looked at the effect of age on risk among a population of Italian soccer players, and found that for ages up to 49, the Standard Morbidity Ratio was 7.5, but then fell to 4.2 for those older than 50.

### References

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<sup>21</sup> Schmidt (2010) reported Odds Ratios in its text. We have calculated from the underlying data reported in Schmidt (2010) a risk multiple for ease of comparison to the other studies.

- Chio, Adriano, et al., “Severely increased risk of amyotrophic lateral sclerosis among Italian professional football players,” *Brain* Vol. 128 (2005): 472-476

## 7. Dementia

Five studies were considered with respect to the increased risk of dementia. These studies produced estimates of induced risk ranging from 0.7 to 3.86. Again, Lehman (2012) reported that the risk of Dementia as a contributing factor to a player’s death (*i.e.*, not necessarily the specific cause of death) was 3.86. Mehta (1999), in a population-based cohort from The Netherlands, found the risk multiple for men developing dementia was 0.7. Plassman (2000) found that hazard rate for a cohort of U.S. Navy and Marine veterans of World War II was 1.33. Finally, Lee (2013), in a population-based study from Taiwan, found a hazard ratio of 3.26. Another source, Amen (2011) was excluded because of the small sample size (n=100), and inconsistency between prevalence and incidence in its calculations.

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## 8. Parkinson’s Disease

Four sources were identified that calculated a risk multiple for Parkinson’s Disease, one based on a study of retired NFL players, and three more generalized to the risk of Parkinson’s after a traumatic brain/head injury. These studies reported risk multiples ranging from 1.44 to 1.69. The Lehman (2012) study found that the risk of a retired NFL player dying with Parkinson’s as a contributing factor was 1.69 times greater than that of the male general population.

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From the Bower (2003) study of U.S. males and females from Rochester, Minnesota we calculated a risk multiple of 1.76, while from Lee (2012), we calculated a 1.44 risk multiple for the central-California-based sample. From the Goldman (2006) study on male twin pairs, we calculated a risk multiple of 1.48.<sup>22</sup> Both Goldman (2006) and Bower (2003) are for males only, while the only data available from Lee (2012) was for both genders. Multiple additional studies on the impact of brain trauma are available (summarized in Goldman (2006)), but all were conducted in the 1980s and 1990s. No further breakdowns of the multiple by age were available in any of the studies.

### *References*

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- Lehman, Everett J. et al., “Neurodegenerative causes of death among retired National Football League players,” *Neurology* Vol. 79 (Nov. 6, 2012): 1-5

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<sup>22</sup> Bower (2003), Lee (2012) and Goldman (2006) all reported only the Odds Ratios in their texts, so for comparison purposes, we have calculated the corresponding Risk Ratio for use in the average.

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**Appendix B: Annual Cash Flow Model and Assumptions**

| Cash Flow Modeling Assumptions           |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Item Category                            | Assumed Value | Notes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Funding and Investment</b>            | 2.0%          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Inflation on Monetary Award Amounts      | 2.5%          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Real rate of return on invested funds    | 4.5%          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Nominal rate of return on invested funds |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Claim Review and Processing</b>       |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Facility start up costs                  | \$2,000,000   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Cost per claim                           | \$1,700       | Expected cost for claim review and processing is \$750/claim. There is an additional \$100 fee per claim for processing medicare liens. Both fees are applied to claims that are filed, including those that are valid for payment and claims that will not be paid. The model counts the number of valid claims. It is assumed that there will be an equal number of payable and non-payable claims so a total cost of \$1,700 per valid claim is used in the model (2 x \$750) + (2 x \$100) |
| Inflation on processing costs            | 2.0%          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

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Dollars by Year Paid - Accounting for Payment Lag and Participation Rate  
(\$ millions)

| Year  | Filers  |         | Futures |         | Deceased >2005 |        | Death w/ CTE |        | Deceased <=2005 |       | Processing Cost |       | Total   |         |
|-------|---------|---------|---------|---------|----------------|--------|--------------|--------|-----------------|-------|-----------------|-------|---------|---------|
|       | Nom.    | NPV     | Nom.    | NPV     | Nom.           | NPV    | Nom.         | NPV    | Nom.            | NPV   | Nom.            | NPV   | Nom.    | NPV     |
| Total | \$426.9 | \$251.2 | \$415.7 | \$179.1 | \$19.3         | \$17.8 | \$65.7       | \$60.7 | \$5.7           | \$5.3 | \$10.1          | \$3.2 | \$945.5 | \$519.4 |
| 2013  |         |         |         |         |                |        |              |        |                 |       |                 |       |         |         |
| 2014  |         |         |         |         |                |        |              |        |                 |       |                 |       | \$2.0   | \$2.0   |
| 2015  | \$98.0  | \$91.8  | \$12.5  | \$11.7  | \$13.5         | \$12.6 | \$46.0       | \$43.1 | \$4.0           | \$3.8 | \$0.2           | \$0.2 | \$174.2 | \$163.0 |
| 2016  | \$46.8  | \$41.9  | \$10.3  | \$9.3   | \$5.8          | \$5.2  | \$19.7       | \$17.7 | \$1.7           | \$1.5 | \$0.2           | \$0.2 | \$84.5  | \$75.7  |
| 2017  | \$8.0   | \$6.9   | \$7.9   | \$6.7   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.1 | \$16.0  | \$13.7  |
| 2018  | \$6.8   | \$5.5   | \$8.6   | \$7.0   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.2 | \$15.5  | \$12.7  |
| 2019  | \$6.4   | \$5.0   | \$9.1   | \$7.2   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.1 | \$15.7  | \$12.3  |
| 2020  | \$6.2   | \$4.7   | \$9.2   | \$6.9   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.1           | \$0.1 | \$15.5  | \$11.6  |
| 2021  | \$5.6   | \$4.0   | \$8.5   | \$6.1   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.1           | \$0.1 | \$14.1  | \$10.2  |
| 2022  | \$5.8   | \$4.0   | \$9.7   | \$6.7   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.1           | \$0.1 | \$15.6  | \$10.7  |
| 2023  | \$7.1   | \$4.7   | \$10.1  | \$6.6   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.1           | \$0.1 | \$17.3  | \$11.4  |
| 2024  | \$8.2   | \$5.2   | \$10.2  | \$6.4   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.1           | \$0.1 | \$18.6  | \$11.7  |
| 2025  | \$8.3   | \$5.0   | \$11.5  | \$6.9   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.1           | \$0.1 | \$19.9  | \$12.0  |
| 2026  | \$7.3   | \$4.2   | \$12.4  | \$7.2   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.1           | \$0.1 | \$19.8  | \$11.4  |
| 2027  | \$7.4   | \$4.1   | \$11.8  | \$6.5   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.1           | \$0.1 | \$19.3  | \$10.7  |
| 2028  | \$6.9   | \$3.6   | \$10.8  | \$5.7   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.1           | \$0.1 | \$17.8  | \$9.4   |
| 2029  | \$7.5   | \$3.8   | \$10.0  | \$5.0   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.1           | \$0.1 | \$17.6  | \$8.9   |
| 2030  | \$9.1   | \$4.4   | \$8.5   | \$4.1   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.1           | \$0.1 | \$17.7  | \$8.6   |
| 2031  | \$8.8   | \$4.1   | \$8.1   | \$3.7   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.1           | \$0.1 | \$17.0  | \$7.9   |
| 2032  | \$7.4   | \$3.3   | \$9.1   | \$4.0   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.1           | \$0.1 | \$16.7  | \$7.4   |
| 2033  | \$6.6   | \$2.8   | \$9.7   | \$4.1   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.1 | \$16.4  | \$7.0   |
| 2034  | \$7.4   | \$3.0   | \$9.3   | \$3.8   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.1 | \$16.8  | \$6.8   |
| 2035  | \$8.0   | \$3.1   | \$9.6   | \$3.7   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.1 | \$17.8  | \$6.9   |
| 2036  | \$9.0   | \$3.3   | \$10.3  | \$3.8   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.1 | \$19.5  | \$7.2   |
| 2037  | \$9.2   | \$3.3   | \$10.4  | \$3.7   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.1 | \$19.8  | \$7.0   |
| 2038  | \$8.8   | \$3.0   | \$10.3  | \$3.5   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.1 | \$19.3  | \$6.6   |
| 2039  | \$7.6   | \$2.5   | \$10.0  | \$3.3   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.1 | \$17.8  | \$5.8   |
| 2040  | \$6.9   | \$2.2   | \$11.5  | \$3.6   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.1 | \$18.7  | \$5.8   |
| 2041  | \$6.8   | \$2.0   | \$11.5  | \$3.4   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.1 | \$18.6  | \$5.5   |
| 2042  | \$6.7   | \$1.9   | \$10.6  | \$3.0   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.1 | \$17.6  | \$5.0   |
| 2043  | \$7.8   | \$2.1   | \$8.2   | \$2.2   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.1 | \$16.1  | \$4.4   |
| 2044  | \$8.1   | \$2.1   | \$7.7   | \$2.0   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.1 | \$16.0  | \$4.2   |
| 2045  | \$8.8   | \$2.2   | \$6.5   | \$1.6   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.1 | \$15.5  | \$3.9   |
| 2046  | \$7.9   | \$1.9   | \$8.4   | \$2.0   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.3           | \$0.1 | \$16.5  | \$4.0   |
| 2047  | \$6.4   | \$1.5   | \$9.5   | \$2.2   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.0 | \$16.1  | \$3.7   |
| 2048  | \$4.5   | \$1.0   | \$10.2  | \$2.2   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.1 | \$14.9  | \$3.3   |
| 2049  | \$3.9   | \$0.8   | \$8.2   | \$1.7   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.0 | \$12.3  | \$2.6   |
| 2050  | \$3.8   | \$0.8   | \$7.9   | \$1.6   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.0 | \$11.8  | \$2.4   |
| 2051  | \$4.2   | \$0.8   | \$6.6   | \$1.3   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.0 | \$11.0  | \$2.1   |
| 2052  | \$4.6   | \$0.8   | \$5.7   | \$1.1   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.3           | \$0.0 | \$10.6  | \$1.9   |
| 2053  | \$4.6   | \$0.8   | \$5.5   | \$1.0   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.3           | \$0.0 | \$10.3  | \$1.8   |
| 2054  | \$3.7   | \$0.6   | \$5.2   | \$0.9   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.0 | \$9.2   | \$1.5   |
| 2055  | \$2.8   | \$0.5   | \$5.2   | \$0.8   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.0 | \$8.2   | \$1.3   |
| 2056  | \$2.5   | \$0.4   | \$4.5   | \$0.7   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.0 | \$7.3   | \$1.1   |
| 2057  | \$2.2   | \$0.3   | \$4.2   | \$0.6   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.0 | \$6.7   | \$1.0   |
| 2058  | \$1.9   | \$0.3   | \$4.1   | \$0.6   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.0 | \$6.1   | \$0.9   |
| 2059  | \$1.6   | \$0.2   | \$3.9   | \$0.5   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.0 | \$5.6   | \$0.8   |
| 2060  | \$1.3   | \$0.2   | \$3.3   | \$0.4   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.0 | \$4.8   | \$0.6   |
| 2061  | \$1.4   | \$0.2   | \$2.6   | \$0.3   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.0 | \$4.2   | \$0.5   |
| 2062  | \$1.2   | \$0.1   | \$2.2   | \$0.3   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.0 | \$3.6   | \$0.4   |
| 2063  | \$0.9   | \$0.1   | \$1.9   | \$0.2   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.1           | \$0.0 | \$3.0   | \$0.3   |
| 2064  | \$0.7   | \$0.1   | \$1.8   | \$0.2   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.0 | \$2.6   | \$0.3   |
| 2065  | \$0.6   | \$0.1   | \$1.7   | \$0.2   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.1           | \$0.0 | \$2.4   | \$0.2   |
| 2066  | \$0.6   | \$0.1   | \$1.5   | \$0.2   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.0 | \$2.3   | \$0.2   |
| 2067  | \$0.6   | \$0.1   | \$1.3   | \$0.1   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.1           | \$0.0 | \$1.9   | \$0.2   |
| 2068  | \$0.6   | \$0.1   | \$1.1   | \$0.1   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.2           | \$0.0 | \$1.8   | \$0.2   |
| 2069  | \$0.4   | \$0.0   | \$0.9   | \$0.1   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.1           | \$0.0 | \$1.3   | \$0.1   |
| 2070  | \$0.2   | \$0.0   | \$0.8   | \$0.1   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.1           | \$0.0 | \$1.1   | \$0.1   |
| 2071  | \$0.1   | \$0.0   | \$0.8   | \$0.1   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.1           | \$0.0 | \$1.0   | \$0.1   |
| 2072  | \$0.1   | \$0.0   | \$0.8   | \$0.1   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.1           | \$0.0 | \$0.9   | \$0.1   |
| 2073  | \$0.1   | \$0.0   | \$0.6   | \$0.0   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.1           | \$0.0 | \$0.8   | \$0.1   |
| 2074  | \$0.1   | \$0.0   | \$0.4   | \$0.0   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.1           | \$0.0 | \$0.6   | \$0.0   |
| 2075  | \$0.1   | \$0.0   | \$0.3   | \$0.0   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.0           | \$0.0 | \$0.4   | \$0.0   |
| 2076  | \$0.0   | \$0.0   | \$0.2   | \$0.0   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.0           | \$0.0 | \$0.3   | \$0.0   |
| 2077  | \$0.1   | \$0.0   | \$0.2   | \$0.0   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.0           | \$0.0 | \$0.3   | \$0.0   |
| 2078  | \$0.1   | \$0.0   | \$0.2   | \$0.0   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.0           | \$0.0 | \$0.3   | \$0.0   |
| 2079  | \$0.0   | \$0.0   | \$0.1   | \$0.0   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.0           | \$0.0 | \$0.2   | \$0.0   |
| 2080  | \$0.0   | \$0.0   | \$0.1   | \$0.0   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.0           | \$0.0 | \$0.1   | \$0.0   |
| 2081  | \$0.0   | \$0.0   | \$0.1   | \$0.0   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.0           | \$0.0 | \$0.1   | \$0.0   |
| 2082  | \$0.0   | \$0.0   | \$0.0   | \$0.0   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.0           | \$0.0 | \$0.0   | \$0.0   |
| 2083  | \$0.0   | \$0.0   | \$0.0   | \$0.0   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.0           | \$0.0 | \$0.0   | \$0.0   |
| 2084  | \$0.0   | \$0.0   | \$0.0   | \$0.0   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.0           | \$0.0 | \$0.0   | \$0.0   |
| 2085  | \$0.0   | \$0.0   | \$0.0   | \$0.0   |                | \$0.0  |              | \$0.0  |                 | \$0.0 | \$0.0           | \$0.0 | \$0.0   | \$0.0   |

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**Appendix C: Summary of Claims Filed by Former NFL Players****Table C-1: Summary of Claims Filed by Former NFL Players<sup>1</sup>**

| <b>Category</b>    | <b>Disease/Impairment</b> |                   |            |                   |                 | <b>Total</b> |
|--------------------|---------------------------|-------------------|------------|-------------------|-----------------|--------------|
|                    | <b>Death w/CTE</b>        | <b>Alzheimers</b> | <b>ALS</b> | <b>Parkinsons</b> | <b>Dementia</b> |              |
| Self-Reported (SR) | 5                         | 11                | 1          | 1                 | 60              | 78           |
| Diagnosed (D)      | 11                        | 35                | 10         | 4                 | 101             | 161          |
| None               | -                         | -                 | -          | -                 | -               | 4,025        |
| <b>Total</b>       | <b>16</b>                 | <b>46</b>         | <b>11</b>  | <b>5</b>          | <b>161</b>      | <b>4264</b>  |

<sup>1</sup> Includes only those claims that were provided at the time of the analysis. Additional claims have been filed subsequently.

Notes: Self-Reported (SR) cases are those for which the filer identified diseases or impairments in their claim but did not have a medical diagnosis. Diagnosed (D) cases are those files that had a medical diagnosis for the diseases or impairments claimed. Some player's claims have more than one disease/impairment, and therefore could be counted in more than one disease category and therefore the total counts are greater than the number of claimants. Cases listed as Death with CTE represents those cases that were included on the list of CTE cases provided by Plaintiff representatives and were also included in the claims filed. In the model, only the cases of Alzheimer's, ALS, Parkinson's, and Dementia that had a medical diagnosis were used.

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## Appendix D: Examples of Life Cycle Modeling of Former NFL Players

The following pages present 14 different hypothetical cases to demonstrate how the life cycle model is applied. These hypothetical cases are:

1. Player diagnosed with Alzheimer's at age 52 who played 3 years.
2. Player diagnosed with Alzheimer's at age 63 who played 5 years.
3. Player who died of natural causes at the age of 77 who played 5 years.
4. Player diagnosed with ALS at age 44 who played 12 years.
5. Player diagnosed with Level 1.5 at 49 and Level 2 at 52 who played 4 years.
6. Player diagnosed with Level 1.5 at 55, progressing to Level 2 at 58, and progressing to Alzheimer's at 71 who played 9 years.
7. Player diagnosed with ALS at age 76 who played 6 years.
8. Player diagnosed with Alzheimer's at age 59 who played 2 years.
9. Player diagnosed with Level 1.5 at age 62, progressing to Level 2 at age 65 who played 5+ years.
10. Player diagnosed with Level 1.5 at age 72, progressing to Level 2 at 75 who played 6 years.
11. Player diagnosed with ALS at age 65 who played 3 years.
12. Player diagnosed with Alzheimer's at age 55 who played 2 years.
13. Player diagnosed with Parkinson's at age 50 who played 5+ years.
14. Player diagnosed with Parkinson's at age 68 who played 4 years.



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Hypothetical Player Case Profile #1

|                            |             |
|----------------------------|-------------|
| Disease Diagnosed          | Alzheimer's |
| Age at Diagnosis           | 52          |
| Years played               | 3           |
| Year of Compensation       | 2022        |
| Total Nominal Compensation | \$1,147,289 |

Life Cycle Modeling For Individual Former NFL Player

| Incidence |     |         |           |         |         |             |             |           |                               | Outcome                 |                                   |  |                 |  |
|-----------|-----|---------|-----------|---------|---------|-------------|-------------|-----------|-------------------------------|-------------------------|-----------------------------------|--|-----------------|--|
| Year      | Age | Natural |           | ALS     | Suicide | Parkinson's | Alzheimer's | Level 1.5 | Adverse<br>Diagnosis<br>(Y/N) | Nominal<br>Compensation | Comments                          |  |                 |  |
|           |     | Death   | Level 1.5 |         |         |             |             |           |                               |                         |                                   |  |                 |  |
| 2014      | 44  | 0.3350% | 0.0115%   | 0.0115% | 0.0433% | 0.0028%     | 0.0057%     | 0.0003%   | N                             |                         |                                   |  |                 |  |
| 2015      | 45  | 0.3630% | 0.0118%   | 0.0118% | 0.0475% | 0.0028%     | 0.0057%     | 0.0003%   | N                             |                         |                                   |  |                 |  |
| 2016      | 46  | 0.3920% | 0.0129%   | 0.0129% | 0.0521% | 0.0028%     | 0.0051%     | 0.0004%   | N                             |                         |                                   |  |                 |  |
| 2017      | 47  | 0.4180% | 0.0120%   | 0.0120% | 0.0571% | 0.0028%     | 0.0058%     | 0.0004%   | N                             |                         |                                   |  |                 |  |
| 2018      | 48  | 0.4380% | 0.0129%   | 0.0129% | 0.0626% | 0.0028%     | 0.0087%     | 0.0005%   | N                             |                         |                                   |  |                 |  |
| 2019      | 49  | 0.4570% | 0.0130%   | 0.0130% | 0.0687% | 0.0028%     | 0.0125%     | 0.0005%   | N                             |                         |                                   |  |                 |  |
| 2020      | 50  | 0.4780% | 0.0122%   | 0.0122% | 0.0753% | 0.0028%     | 0.0181%     | 0.0006%   | N                             |                         |                                   |  |                 |  |
| 2021      | 51  | 0.5040% | 0.0132%   | 0.0132% | 0.0825% | 0.0028%     | 0.0258%     | 0.0007%   | N                             |                         |                                   |  |                 |  |
| 2022      | 52  | 0.5380% | 0.0117%   | 0.0117% | 0.0905% | 0.0028%     | 0.0362%     | 0.0008%   | Y                             | \$ 1,147,289            | Player diagnosed with Alzheimer's |  |                 |  |
| 2023      | 53  | 0.5800% | 0.0133%   | 0.0133% | 0.0992% | 0.0028%     | 0.0500%     | 0.0009%   | N                             |                         |                                   |  |                 |  |
| 2024      | 54  | 0.6320% | 0.0125%   | 0.0125% | 0.1088% | 0.0028%     | 0.0680%     | 0.0010%   | N                             |                         |                                   |  |                 |  |
| 2025      | 55  | 0.6910% | 0.0122%   | 0.0122% | 0.1193% | 0.0028%     | 0.0840%     | 0.0011%   | N                             |                         |                                   |  |                 |  |
| 2026      | 56  | 0.7570% | 0.0133%   | 0.0133% | 0.1308% | 0.0028%     | 0.0978%     | 0.0013%   | N                             |                         |                                   |  |                 |  |
| 2027      | 57  | 0.8280% | 0.0123%   | 0.0123% | 0.1435% | 0.0028%     | 0.1079%     | 0.0015%   | N                             |                         |                                   |  |                 |  |
| 2028      | 58  | 0.9060% | 0.0123%   | 0.0123% | 0.1573% | 0.0028%     | 0.1137%     | 0.0017%   | N                             |                         |                                   |  |                 |  |
| 2029      | 59  | 0.9910% | 0.0122%   | 0.0122% | 0.1725% | 0.0028%     | 0.1143%     | 0.0020%   | N                             |                         |                                   |  |                 |  |
| 2030      | 60  | 1.0860% | 0.0113%   | 0.0113% | 0.1891% | 0.0028%     | 0.1233%     | 0.0023%   | N                             |                         |                                   |  |                 |  |
| 2031      | 61  | 1.1970% | 0.0104%   | 0.0104% | 0.1982% | 0.0028%     | 0.1341%     | 0.0025%   | Deceased                      |                         |                                   |  | Player Deceased |  |

|                            |             |
|----------------------------|-------------|
| Disease Diagnosed          | Alzheimer's |
| Age at Diagnosis           | 63          |
| Years played               | 5           |
| Year of Compensation       | 2033        |
| Total Nominal Compensation | \$1,313,577 |

# Life Cycle Modeling For Individual Former NFL Player

| Outcome       |     |         |             |                       |                         |
|---------------|-----|---------|-------------|-----------------------|-------------------------|
| Natural Death | ALS | Suicide | Parkinson's | Alzheimer's Level 1.5 | Adverse Diagnosis (Y/N) |
|               |     |         |             |                       | N                       |
|               |     |         |             |                       | N                       |
|               |     |         |             |                       | N                       |
|               |     |         |             |                       | N                       |
|               |     |         |             |                       | N                       |
|               |     |         |             |                       | N                       |
|               |     |         |             |                       | N                       |
|               |     |         |             |                       | N                       |
|               |     |         |             |                       | N                       |
|               |     |         |             |                       | N                       |
|               |     |         |             |                       | N                       |
|               |     |         |             |                       | N                       |
|               |     |         |             |                       | N                       |
|               |     |         |             |                       | N                       |
|               |     |         |             |                       | N                       |
|               |     |         |             |                       | N                       |
|               |     |         |             |                       | N                       |
|               |     |         |             |                       | N                       |
|               |     |         |             | X                     | Y                       |
| Y             |     |         |             |                       | N                       |
|               |     |         |             |                       | Deceased                |

| Nominal Compensation | Comments              |
|----------------------|-----------------------|
|                      |                       |
|                      |                       |
|                      |                       |
|                      |                       |
|                      |                       |
|                      |                       |
|                      |                       |
|                      |                       |
|                      |                       |
|                      |                       |
|                      |                       |
|                      |                       |
|                      |                       |
| \$1,313,577          | Alzheimer's Diagnosed |
|                      | Please Deceased       |

|                            |               |
|----------------------------|---------------|
| Disease Diagnosed          | Natural Death |
| Age at Diagnosis           | 77            |
| Years played               | 5             |
| Year of Compensation       | 2053          |
| Total Nominal Compensation | \$0           |

## Incidence

| INCOME        |     |           |         |          |             |          |             |         |           | OUTCOME |                         |                          |                    |  |
|---------------|-----|-----------|---------|----------|-------------|----------|-------------|---------|-----------|---------|-------------------------|--------------------------|--------------------|--|
| Natural Death |     |           |         |          | Parkinson's |          | Alzheimer's |         | Level 1.5 |         | Adverse                 |                          |                    |  |
| Year          | Age | Death     | ALS     | Suicide  | ALS         | Suicide  | ALS         | Suicide | ALS       | Suicide | Level 2/<br>Parkinson's | Level 1.5<br>Alzheimer's | Diagnosis<br>(Y/N) |  |
| 2014          | 44  | 0.350%    | 0.0115% | 0.0433%  | 0.0038%     | 0.0057%  | 0.0003%     |         |           |         |                         |                          | N                  |  |
| 2015          | 45  | 0.360%    | 0.0118% | 0.0475%  | 0.0038%     | 0.0057%  | 0.0003%     |         |           |         |                         |                          | N                  |  |
| 2016          | 46  | 0.3920%   | 0.0129% | 0.0521%  | 0.0028%     | 0.0051%  | 0.0004%     |         |           |         |                         |                          | N                  |  |
| 2017          | 47  | 0.4180%   | 0.0120% | 0.0571%  | 0.0028%     | 0.0038%  | 0.0004%     |         |           |         |                         |                          | N                  |  |
| 2018          | 48  | 0.4380%   | 0.0128% | 0.0626%  | 0.0038%     | 0.0087%  | 0.0005%     |         |           |         |                         |                          | N                  |  |
| 2019          | 49  | 0.4570%   | 0.0130% | 0.0687%  | 0.0038%     | 0.0087%  | 0.0005%     |         |           |         |                         |                          | N                  |  |
| 2020          | 50  | 0.4780%   | 0.0122% | 0.0753%  | 0.0028%     | 0.0181%  | 0.0006%     |         |           |         |                         |                          | N                  |  |
| 2021          | 51  | 0.5040%   | 0.0132% | 0.0825%  | 0.0028%     | 0.0281%  | 0.0007%     |         |           |         |                         |                          | N                  |  |
| 2022          | 52  | 0.5380%   | 0.0127% | 0.0905%  | 0.0038%     | 0.0362%  | 0.0008%     |         |           |         |                         |                          | N                  |  |
| 2023          | 53  | 0.5800%   | 0.0135% | 0.0992%  | 0.0028%     | 0.0500%  | 0.0009%     |         |           |         |                         |                          | N                  |  |
| 2024          | 54  | 0.6320%   | 0.0125% | 0.1088%  | 0.0028%     | 0.0680%  | 0.0010%     |         |           |         |                         |                          | N                  |  |
| 2025          | 55  | 0.6910%   | 0.0122% | 0.1193%  | 0.0028%     | 0.0840%  | 0.0011%     |         |           |         |                         |                          | N                  |  |
| 2026          | 56  | 0.7570%   | 0.0133% | 0.1308%  | 0.0028%     | 0.0978%  | 0.0013%     |         |           |         |                         |                          | N                  |  |
| 2027          | 57  | 0.8260%   | 0.0123% | 0.1435%  | 0.0028%     | 0.1079%  | 0.0015%     |         |           |         |                         |                          | N                  |  |
| 2028          | 58  | 0.9060%   | 0.0123% | 0.1573%  | 0.0028%     | 0.1177%  | 0.0017%     |         |           |         |                         |                          | N                  |  |
| 2029          | 59  | 0.9910%   | 0.0122% | 0.1725%  | 0.0028%     | 0.1143%  | 0.0020%     |         |           |         |                         |                          | N                  |  |
| 2030          | 60  | 1.0860%   | 0.0113% | 0.1891%  | 0.0028%     | 0.1233%  | 0.0023%     |         |           |         |                         |                          | N                  |  |
| 2031          | 61  | 1.1920%   | 0.0104% | 0.1982%  | 0.0028%     | 0.1341%  | 0.0025%     |         |           |         |                         |                          | N                  |  |
| 2032          | 62  | 1.3110%   | 0.0095% | 0.2082%  | 0.0028%     | 0.1577%  | 0.0028%     |         |           |         |                         |                          | N                  |  |
| 2033          | 63  | 1.4460%   | 0.0107% | 0.2192%  | 0.0028%     | 0.1989%  | 0.0030%     |         |           |         |                         |                          | N                  |  |
| 2034          | 64  | 1.5900%   | 0.0107% | 0.2312%  | 0.0028%     | 0.2643%  | 0.0033%     |         |           |         |                         |                          | N                  |  |
| 2035          | 65  | 1.7530%   | 0.0095% | 0.2444%  | 0.0028%     | 0.3320%  | 0.0036%     |         |           |         |                         |                          | N                  |  |
| 2036          | 66  | 1.9320%   | 0.0097% | 0.2589%  | 0.0028%     | 0.4022%  | 0.0039%     |         |           |         |                         |                          | N                  |  |
| 2037          | 67  | 2.1220%   | 0.0087% | 0.2747%  | 0.0028%     | 0.4674%  | 0.0042%     |         |           |         |                         |                          | N                  |  |
| 2038          | 68  | 2.3230%   | 0.0102% | 0.2921%  | 0.0028%     | 0.5284%  | 0.0046%     |         |           |         |                         |                          | N                  |  |
| 2039          | 69  | 2.5380%   | 0.0097% | 0.3112%  | 0.0028%     | 0.5629%  | 0.0049%     |         |           |         |                         |                          | N                  |  |
| 2040          | 70  | 2.7850%   | 0.0098% | 0.3321%  | 0.0028%     | 0.6032%  | 0.0053%     |         |           |         |                         |                          | N                  |  |
| 2041          | 71  | 3.0590%   | 0.0101% | 0.3739%  | 0.0028%     | 0.6409%  | 0.0058%     |         |           |         |                         |                          | N                  |  |
| 2042          | 72  | 3.3430%   | 0.0105% | 0.4232%  | 0.0028%     | 0.7023%  | 0.0063%     |         |           |         |                         |                          | N                  |  |
| 2043          | 73  | 3.6330%   | 0.0107% | 0.4811%  | 0.0028%     | 0.7932%  | 0.0069%     |         |           |         |                         |                          | N                  |  |
| 2044          | 74  | 3.9420%   | 0.0117% | 0.5493%  | 0.0028%     | 0.9205%  | 0.0075%     |         |           |         |                         |                          | N                  |  |
| 2045          | 75  | 4.2990%   | 0.0123% | 0.6295%  | 0.0028%     | 1.0650%  | 0.0082%     |         |           |         |                         |                          | N                  |  |
| 2046          | 76  | 4.7150%   | 0.0128% | 0.7238%  | 0.0028%     | 1.2215%  | 0.0084%     |         |           |         |                         |                          | N                  |  |
| 2047          | 77  | 5.1840%   | 0.0132% | 0.8347%  | 0.0028%     | 1.3765%  | 0.0086%     |         |           |         |                         |                          | N                  |  |
| 2048          | 78  | 5.7110%   | 0.0110% | 0.9652%  | 0.0028%     | 1.5312%  | 0.0089%     |         |           |         |                         |                          | N                  |  |
| 2049          | 79  | 6.3050%   | 0.0131% | 1.1187%  | 0.0028%     | 1.6889%  | 0.0091%     |         |           |         |                         |                          | N                  |  |
| 2050          | 80  | 6.9780%   | 0.0135% | 1.2993%  | 0.0028%     | 1.8569%  | 0.0094%     |         |           |         |                         |                          | N                  |  |
| 2051          | 81  | 7.7380%   | 0.0135% | 1.4467%  | 0.0028%     | 2.0369%  | 0.0096%     |         |           |         |                         |                          | N                  |  |
| 2052          | 82  | 8.5960%   | 0.0152% | 1.6123%  | 0.0028%     | 2.2602%  | 0.0099%     |         |           |         |                         |                          | N                  |  |
| 2053          | 83  | 9.5570%   | 0.0137% | 1.7980%  | 0.0028%     | 2.5311%  | 0.0101%     |         |           |         |                         |                          | N                  |  |
| 2054          | 84  | 10.6920%  | 0.0137% | 1.9880%  | 0.0028%     | 2.8624%  | 0.0103%     |         |           |         |                         |                          | N                  |  |
| 2055          | 85  | 11.9520%  | 0.0137% | 2.2820%  | 0.0028%     | 3.2624%  | 0.0105%     |         |           |         |                         |                          | N                  |  |
| 2056          | 86  | 13.3520%  | 0.0137% | 2.6920%  | 0.0028%     | 3.7324%  | 0.0107%     |         |           |         |                         |                          | N                  |  |
| 2057          | 87  | 14.8520%  | 0.0137% | 3.2220%  | 0.0028%     | 4.2624%  | 0.0109%     |         |           |         |                         |                          | N                  |  |
| 2058          | 88  | 16.4520%  | 0.0137% | 3.7720%  | 0.0028%     | 4.8424%  | 0.0111%     |         |           |         |                         |                          | N                  |  |
| 2059          | 89  | 18.1520%  | 0.0137% | 4.3420%  | 0.0028%     | 5.4524%  | 0.0113%     |         |           |         |                         |                          | N                  |  |
| 2060          | 90  | 20.0020%  | 0.0137% | 4.9420%  | 0.0028%     | 6.0924%  | 0.0115%     |         |           |         |                         |                          | N                  |  |
| 2061          | 91  | 21.9520%  | 0.0137% | 5.5620%  | 0.0028%     | 6.7524%  | 0.0117%     |         |           |         |                         |                          | N                  |  |
| 2062          | 92  | 24.0520%  | 0.0137% | 6.1520%  | 0.0028%     | 7.4324%  | 0.0119%     |         |           |         |                         |                          | N                  |  |
| 2063          | 93  | 26.3020%  | 0.0137% | 6.7220%  | 0.0028%     | 8.1324%  | 0.0121%     |         |           |         |                         |                          | N                  |  |
| 2064          | 94  | 28.7020%  | 0.0137% | 7.2720%  | 0.0028%     | 8.8524%  | 0.0123%     |         |           |         |                         |                          | N                  |  |
| 2065          | 95  | 31.2520%  | 0.0137% | 7.8020%  | 0.0028%     | 9.5924%  | 0.0125%     |         |           |         |                         |                          | N                  |  |
| 2066          | 96  | 33.9520%  | 0.0137% | 8.3120%  | 0.0028%     | 10.3524% | 0.0127%     |         |           |         |                         |                          | N                  |  |
| 2067          | 97  | 36.8020%  | 0.0137% | 8.8020%  | 0.0028%     | 11.1324% | 0.0129%     |         |           |         |                         |                          | N                  |  |
| 2068          | 98  | 39.8020%  | 0.0137% | 9.2720%  | 0.0028%     | 11.9324% | 0.0131%     |         |           |         |                         |                          | N                  |  |
| 2069          | 99  | 42.9520%  | 0.0137% | 9.7220%  | 0.0028%     | 12.7524% | 0.0133%     |         |           |         |                         |                          | N                  |  |
| 2070          | 100 | 46.2520%  | 0.0137% | 10.1520% | 0.0028%     | 13.5924% | 0.0135%     |         |           |         |                         |                          | N                  |  |
| 2071          | 101 | 49.7020%  | 0.0137% | 10.5620% | 0.0028%     | 14.4524% | 0.0137%     |         |           |         |                         |                          | N                  |  |
| 2072          | 102 | 53.3020%  | 0.0137% | 10.9520% | 0.0028%     | 15.3324% | 0.0139%     |         |           |         |                         |                          | N                  |  |
| 2073          | 103 | 57.0520%  | 0.0137% | 11.3220% | 0.0028%     | 16.2324% | 0.0141%     |         |           |         |                         |                          | N                  |  |
| 2074          | 104 | 60.9520%  | 0.0137% | 11.6720% | 0.0028%     | 17.1524% | 0.0143%     |         |           |         |                         |                          | N                  |  |
| 2075          | 105 | 65.0020%  | 0.0137% | 12.0020% | 0.0028%     | 18.0924% | 0.0145%     |         |           |         |                         |                          | N                  |  |
| 2076          | 106 | 69.2020%  | 0.0137% | 12.3120% | 0.0028%     | 19.0524% | 0.0147%     |         |           |         |                         |                          | N                  |  |
| 2077          | 107 | 73.5520%  | 0.0137% | 12.6020% | 0.0028%     | 20.0324% | 0.0149%     |         |           |         |                         |                          | N                  |  |
| 2078          | 108 | 78.0520%  | 0.0137% | 12.8720% | 0.0028%     | 21.0324% | 0.0151%     |         |           |         |                         |                          | N                  |  |
| 2079          | 109 | 82.7020%  | 0.0137% | 13.1220% | 0.0028%     | 22.0524% | 0.0153%     |         |           |         |                         |                          | N                  |  |
| 2080          | 110 | 87.5020%  | 0.0137% | 13.3520% | 0.0028%     | 23.0924% | 0.0155%     |         |           |         |                         |                          | N                  |  |
| 2081          | 111 | 92.4520%  | 0.0137% | 13.5620% | 0.0028%     | 24.1524% | 0.0157%     |         |           |         |                         |                          | N                  |  |
| 2082          | 112 | 97.5520%  | 0.0137% | 13.7520% | 0.0028%     | 25.2324% | 0.0159%     |         |           |         |                         |                          | N                  |  |
| 2083          | 113 | 102.8020% | 0.0137% | 13.9220% | 0.0028%     | 26.3324% | 0.0161%     |         |           |         |                         |                          | N                  |  |
| 2084          | 114 | 108.2020% | 0.0137% | 14.0720% | 0.0028%     | 27.4524% | 0.0163%     |         |           |         |                         |                          | N                  |  |
| 2085          | 115 | 113.7520% | 0.0137% | 14.2020% | 0.0028%     | 28.5924% | 0.0165%     |         |           |         |                         |                          | N                  |  |
| 2086          | 116 | 119.4520% | 0.0137% | 14.3120% | 0.0028%     | 29.7524% | 0.0167%     |         |           |         |                         |                          | N                  |  |
| 2087          | 117 | 125.3020% | 0.0137% | 14.4020% | 0.0028%     | 30.9324% | 0.0169%     |         |           |         |                         |                          | N                  |  |
| 2088          | 118 | 131.3020% | 0.0137% | 14.4720% | 0.0028%     | 32.1324% | 0.0171%     |         |           |         |                         |                          | N                  |  |
| 2089          | 119 | 137.4520% | 0.0137% | 14.5220% | 0.0028%     | 33.3524% | 0.0173%     |         |           |         |                         |                          | N                  |  |
| 2090          | 120 | 143.7520% | 0.0137% | 14.5520% | 0.0028%     | 34.5924% | 0.0175%     |         |           |         |                         |                          | N                  |  |
| 2091          | 121 | 150.2020% | 0.0137% | 14.5620% | 0.0028%     | 35.8524% | 0.0177%     |         |           |         |                         |                          | N                  |  |
| 2092          | 122 | 156.8020% | 0.0137% | 14.5520% | 0.0028%     | 37.1324% | 0.0179%     |         |           |         |                         |                          | N                  |  |
| 2093          | 123 | 163.5520% | 0.0137% | 14.5220% | 0.0028%     | 38.4324% | 0.0181%     |         |           |         |                         |                          | N                  |  |
| 2094          | 124 | 170.4520% | 0.0137% | 14.4720% | 0.0028%     | 39.7524% | 0.0183%     |         |           |         |                         |                          | N                  |  |
| 2095          | 125 | 177.5020% | 0.0137% | 14.4020% | 0.0028%     | 41.0924% | 0.0185%     |         |           |         |                         |                          | N                  |  |
| 2096          | 126 | 184.7020% | 0.0137% | 14.3120% | 0.0028%     | 42.4524% | 0.0187%     |         |           |         |                         |                          | N                  |  |
| 2097          | 127 | 192.0520% | 0.0137% | 14.2020% | 0.0028%     | 43.8324% | 0.0189%     |         |           |         |                         |                          | N                  |  |
| 2098          | 128 | 199.5520% | 0.0137% | 14.0720% | 0.0028%     | 45.2324% | 0.0191%     |         |           |         |                         |                          | N                  |  |
| 2099          | 129 | 207.2020% | 0.0137% | 13.9220% | 0.0028%     | 46.6524% | 0.0193%     |         |           |         |                         |                          | N                  |  |
| 2100          | 130 | 215.0020% | 0.0137% | 13.7520% | 0.0028%     | 48.0924% | 0.0195%     |         |           |         |                         |                          | N                  |  |
| 2101          | 131 | 222.9520% | 0.0137% | 13.5620% | 0.0028%     | 49.5524% | 0.0197%     |         |           |         |                         |                          | N                  |  |
| 2102          | 132 | 231.0520% | 0.0137% | 13.3520% | 0.0028%     | 51.0324% | 0.0199%     |         |           |         |                         |                          | N                  |  |
| 2103          | 133 | 239.3020% | 0.0137% | 13.1220% | 0.0028%     | 52.5324% | 0.0201%     |         |           |         |                         |                          | N                  |  |
| 2104          | 134 | 247.7020% | 0.0137% | 12.8720% | 0.0028%     | 54.0524% | 0.0203%     |         |           |         |                         |                          | N                  |  |
| 2105          | 135 | 256.2520% | 0.0137% | 12.6020% | 0.0028%     | 55.5924% | 0.0205%     |         |           |         |                         |                          | N                  |  |
| 2106          | 136 | 264.9520% | 0.0137% | 12.3120% | 0.0028%     | 57.1524% | 0.0207%     |         |           |         |                         |                          | N                  |  |
| 2107          | 137 | 273.8020% | 0.0137% | 12.0020% | 0.0028%     | 58.7324% | 0.0209%     |         |           |         |                         |                          | N                  |  |
| 2108          | 138 | 282.8020% | 0.0137% | 11.6720% | 0.0028%     | 60.3324% | 0.0211%     |         |           |         |                         |                          | N                  |  |
| 2109          | 139 | 291.9520% | 0.0137% | 11.3220% | 0.0028%     | 61.9524% | 0.0213%     |         |           |         |                         |                          | N                  |  |
| 2110          | 140 | 301.2520% | 0.0137% | 10.9520% | 0.0028%     | 63.5924% | 0.0215%     |         |           |         |                         |                          | N                  |  |
| 2111          | 141 | 310.7020% | 0.0137% | 10.5620% | 0.0028%     | 65.2524% | 0.0217%     |         |           |         |                         |                          | N                  |  |
| 2112          | 142 | 320.3020% | 0.0137% | 10.1520% | 0.0028%     | 66.9324% | 0.0219%     |         |           |         |                         |                          | N                  |  |
| 2113          | 143 | 330.0520% | 0.0137% | 9.7220%  | 0.0028%     | 68.6324% | 0.0221%     |         |           |         |                         |                          | N                  |  |
| 2114          | 144 | 339.9520% | 0.0137% | 9.2720%  | 0.0028%     | 70.3524% | 0.0223%     |         |           |         |                         |                          | N                  |  |
| 2115          | 145 | 349.9520% | 0.0137% | 8.8020%  | 0.0028%     | 72.0924% | 0.0225%     |         |           |         |                         |                          | N                  |  |
| 2116          | 146 | 359.9520% | 0.0137% | 8.3120%  | 0.0028%     | 73.8524% | 0.0227%     |         |           |         |                         |                          | N                  |  |
| 2117          | 147 | 369.9520% | 0.0137% | 7.8020%  | 0.0028%     | 75.6324% | 0.0229%     |         |           |         |                         |                          | N                  |  |
| 2118          | 148 | 379.9520% | 0.0137% | 7.2720%  | 0.0028%     | 77.4324% | 0.0231%     |         |           |         |                         |                          | N                  |  |
| 2119          | 149 | 389.9520% | 0.0137% | 6.7220%  | 0.0028%     | 79.2524% | 0.0233%     |         |           |         |                         |                          | N                  |  |
| 2120          | 150 | 399.9520% | 0.0137% | 6.1520%  | 0.0028%     | 81.0924% | 0.0235%     |         |           |         |                         |                          | N                  |  |
| 2121          | 151 | 409.9520% | 0.0137% | 5.5620%  |             |          |             |         |           |         |                         |                          |                    |  |

|   |                                  |
|---|----------------------------------|
| 0 | Player Deceased - Natural Causes |
|---|----------------------------------|

Privileged and Confidential

Hypothetical Player Case Profile #4

|                            |             |
|----------------------------|-------------|
| Disease Diagnosed          | ALS         |
| Age at Diagnosis           | 44          |
| Years played               | 12          |
| Year of Compensation       | 2014        |
| Total Nominal Compensation | \$5,100,000 |

Life Cycle Modeling For Individual Former NFL Player

| Incidence                 |  |  |  |  |  |  |  |  |  |
|---------------------------|--|--|--|--|--|--|--|--|--|
| Outcome                   |  |  |  |  |  |  |  |  |  |
| Adverse                   |  |  |  |  |  |  |  |  |  |
| Natural Death             |  |  |  |  |  |  |  |  |  |
| ALS                       |  |  |  |  |  |  |  |  |  |
| Suicide                   |  |  |  |  |  |  |  |  |  |
| Parkinson's               |  |  |  |  |  |  |  |  |  |
| Alzheimer's               |  |  |  |  |  |  |  |  |  |
| Level 1.5                 |  |  |  |  |  |  |  |  |  |
| Level 2/                  |  |  |  |  |  |  |  |  |  |
| Diagnosis                 |  |  |  |  |  |  |  |  |  |
| [Y/N]                     |  |  |  |  |  |  |  |  |  |
| Nominal Compensation      |  |  |  |  |  |  |  |  |  |
| Player diagnosed with ALS |  |  |  |  |  |  |  |  |  |
| Comments                  |  |  |  |  |  |  |  |  |  |
| Player Deceased           |  |  |  |  |  |  |  |  |  |

Privileged and Confidential

## Hypothetical Player Case Profile #5

|                            |               |
|----------------------------|---------------|
| Disease Diagnosed          | Level 1.5 & 2 |
| Age at Diagnosis           | 49, 52        |
| Years played               | 4             |
| Year of Compensation       | 2019, 2022    |
| Total Nominal Compensation | \$1,147,289   |

## Life Cycle Modeling For Individual Former NFL Player

| Incidence |     |         |         |         |             |             |           |               |             | Outcome |             |             |           |     |                                 |                 |
|-----------|-----|---------|---------|---------|-------------|-------------|-----------|---------------|-------------|---------|-------------|-------------|-----------|-----|---------------------------------|-----------------|
| Natural   |     |         | ALS     |         |             |             | Suicide   |               | Parkinson's |         | Alzheimer's |             | Level 1.5 |     | Adverse                         |                 |
| Year      | Age | Death   | ALS     | Suicide | Parkinson's | Alzheimer's | Level 1.5 | Natural Death | ALS         | Suicide | Parkinson's | Alzheimer's | Level 1.5 | Y/N | Diagnosis                       |                 |
| 2014      | 44  | 0.3350% | 0.0115% | 0.0433% | 0.0028%     | 0.0057%     | 0.0003%   |               |             |         |             |             |           |     | N                               |                 |
| 2015      | 45  | 0.3630% | 0.0118% | 0.0475% | 0.0028%     | 0.0057%     | 0.0003%   |               |             |         |             |             |           |     | N                               |                 |
| 2016      | 46  | 0.3920% | 0.0129% | 0.0521% | 0.0028%     | 0.0051%     | 0.0004%   |               |             |         |             |             |           |     | N                               |                 |
| 2017      | 47  | 0.4180% | 0.0120% | 0.0571% | 0.0028%     | 0.0058%     | 0.0004%   |               |             |         |             |             |           |     | N                               |                 |
| 2018      | 48  | 0.4380% | 0.0129% | 0.0626% | 0.0028%     | 0.0087%     | 0.0005%   |               |             |         |             |             |           |     | N                               |                 |
| 2019      | 49  | 0.4570% | 0.0130% | 0.0687% | 0.0028%     | 0.0125%     | 0.0005%   |               |             |         |             |             | X         | Y   | Player Diagnosed with Level 1.5 |                 |
| 2020      | 50  | 0.4780% | 0.0122% | 0.0753% | 0.0028%     | 0.0181%     | 0.0006%   |               |             |         |             |             |           |     | N                               |                 |
| 2021      | 51  | 0.5040% | 0.0132% | 0.0825% | 0.0028%     | 0.0258%     | 0.0007%   |               |             |         |             |             |           |     | N                               |                 |
| 2022      | 52  | 0.5380% | 0.0127% | 0.0905% | 0.0028%     | 0.0362%     | 0.0008%   |               |             |         |             |             | X         | Y   | Player Diagnosed with Level 2   |                 |
| 2023      | 53  | 0.5800% | 0.0133% | 0.0992% | 0.0028%     | 0.0500%     | 0.0009%   |               |             |         |             |             |           |     | N                               |                 |
| 2024      | 54  | 0.6320% | 0.0125% | 0.1088% | 0.0028%     | 0.0680%     | 0.0010%   |               |             |         |             |             |           |     | N                               |                 |
| 2025      | 55  | 0.6910% | 0.0122% | 0.1193% | 0.0028%     | 0.0840%     | 0.0011%   |               |             |         |             |             |           |     | N                               |                 |
| 2026      | 56  | 0.7570% | 0.0133% | 0.1308% | 0.0028%     | 0.0978%     | 0.0013%   |               |             |         |             |             |           |     | N                               |                 |
| 2027      | 57  | 0.8280% | 0.0123% | 0.1435% | 0.0028%     | 0.1079%     | 0.0015%   |               |             |         |             |             |           |     | N                               |                 |
| 2028      | 58  | 0.9060% | 0.0123% | 0.1573% | 0.0028%     | 0.1137%     | 0.0017%   |               |             |         |             |             |           |     | N                               |                 |
| 2029      | 59  | 0.9910% | 0.0122% | 0.1725% | 0.0028%     | 0.1143%     | 0.0020%   |               |             |         |             |             |           |     | N                               |                 |
| 2030      | 60  | 1.0860% | 0.0113% | 0.1891% | 0.0028%     | 0.1233%     | 0.0023%   |               |             |         |             |             |           |     | N                               |                 |
| 2031      | 61  | 1.1920% | 0.0104% | 0.1982% | 0.0028%     | 0.1341%     | 0.0025%   |               |             |         |             |             |           |     | N                               |                 |
| 2032      | 62  | 1.3110% | 0.0095% | 0.2082% | 0.0028%     | 0.1577%     | 0.0028%   |               |             |         |             |             |           |     | N                               |                 |
| 2033      | 63  | 1.4440% | 0.0102% | 0.2192% | 0.0028%     | 0.1989%     | 0.0030%   |               |             |         |             |             |           |     | N                               |                 |
| 2034      | 64  | 1.5900% | 0.0102% | 0.2312% | 0.0028%     | 0.2643%     | 0.0033%   |               |             |         |             |             |           |     | N                               |                 |
| 2035      | 65  | 1.7530% | 0.0095% | 0.2444% | 0.0028%     | 0.3320%     | 0.0036%   |               |             |         |             |             |           |     | N                               |                 |
| 2036      | 66  | 1.9320% | 0.0097% | 0.2589% | 0.0028%     | 0.4022%     | 0.0039%   |               |             |         |             |             |           |     | N                               |                 |
| 2037      | 67  | 2.1220% | 0.0087% | 0.2747% | 0.0028%     | 0.4674%     | 0.0042%   |               |             |         |             |             |           |     | N                               |                 |
| 2038      | 68  | 2.3230% | 0.0102% | 0.2921% | 0.0028%     | 0.5224%     | 0.0046%   |               |             |         |             |             |           |     | N                               |                 |
| 2039      | 69  | 2.5380% | 0.0097% | 0.3112% | 0.0028%     | 0.5629%     | 0.0049%   |               |             |         |             |             |           |     | N                               |                 |
| 2040      | 70  | 2.7850% | 0.0098% | 0.3321% | 0.0028%     | 0.6032%     | 0.0053%   |               |             |         |             |             |           |     | N                               |                 |
| 2041      | 71  | 3.0590% | 0.0101% | 0.3739% | 0.0028%     | 0.6409%     | 0.0058%   |               |             |         |             |             |           |     | N                               |                 |
| 2042      | 72  | 3.3430% | 0.0105% | 0.4232% | 0.0028%     | 0.7023%     | 0.0063%   |               |             |         |             |             |           |     | N                               |                 |
| 2043      | 73  | 3.6330% | 0.0107% | 0.4811% | 0.0028%     | 0.7932%     | 0.0069%   |               |             |         |             |             |           |     | N                               |                 |
| 2044      | 74  | 3.9420% | 0.0117% | 0.5493% | 0.0028%     | 0.9205%     | 0.0075%   |               |             |         |             |             |           |     | N                               |                 |
| 2045      | 75  | 4.2990% | 0.0123% | 0.6295% | 0.0028%     | 1.0630%     | 0.0082%   |               |             |         |             |             |           |     | Deceased                        | Player Deceased |

JA4524

## Hypothetical Player Case Profile #6

| Disease Diagnosed          | Level 2 & Alzheimer's |
|----------------------------|-----------------------|
| Age at Diagnosis           | 55, 58, 71            |
| Years played               | 9                     |
| Year of Compensation       | 2025, 2028, 2041      |
| Total Nominal Compensation | \$1,178,981           |

## Life Cycle Modeling For Individual Former NFL Player

| Incidence |     |         |         |         |             |                       | Outcome       |     |         |             |                       |                          |                      |                                   |
|-----------|-----|---------|---------|---------|-------------|-----------------------|---------------|-----|---------|-------------|-----------------------|--------------------------|----------------------|-----------------------------------|
| Natural   |     |         | Adverse |         |             |                       |               |     |         |             |                       |                          |                      |                                   |
| Year      | Age | Death   | ALS     | Suicide | Parkinson's | Alzheimer's Level 1.5 | Natural Death | ALS | Suicide | Parkinson's | Alzheimer's Level 1.5 | Level 2/ Diagnosis (Y/N) | Nominal Compensation | Comments                          |
| 2014      | 44  | 0.3350% | 0.0115% | 0.0433% | 0.0028%     | 0.0057%               |               |     |         |             |                       | N                        |                      |                                   |
| 2015      | 45  |         | 0.0118% | 0.0475% | 0.0028%     | 0.0057%               |               |     |         |             |                       | N                        |                      |                                   |
| 2016      | 46  | 0.3920% | 0.0129% | 0.0521% | 0.0028%     | 0.0051%               |               |     |         |             |                       | N                        |                      |                                   |
| 2017      | 47  | 0.4180% | 0.0120% | 0.0571% | 0.0028%     | 0.0058%               |               |     |         |             |                       | N                        |                      |                                   |
| 2018      | 48  | 0.4380% | 0.0129% | 0.0626% | 0.0028%     | 0.0087%               |               |     |         |             |                       | N                        |                      |                                   |
| 2019      | 49  | 0.4570% | 0.0130% | 0.0687% | 0.0028%     | 0.0125%               |               |     |         |             |                       | N                        |                      |                                   |
| 2020      | 50  | 0.4780% | 0.0122% | 0.0753% | 0.0028%     | 0.0181%               |               |     |         |             |                       | N                        |                      |                                   |
| 2021      | 51  | 0.5040% | 0.0132% | 0.0825% | 0.0028%     | 0.0258%               |               |     |         |             |                       | N                        |                      |                                   |
| 2022      | 52  | 0.5380% | 0.0127% | 0.0905% | 0.0028%     | 0.0362%               |               |     |         |             |                       | N                        |                      |                                   |
| 2023      | 53  | 0.5800% | 0.0133% | 0.0992% | 0.0028%     | 0.0500%               |               |     |         |             |                       | N                        |                      |                                   |
| 2024      | 54  | 0.6320% | 0.0125% | 0.1088% | 0.0028%     | 0.0680%               |               |     |         |             |                       | N                        |                      |                                   |
| 2025      | 55  | 0.6910% | 0.0122% | 0.1193% | 0.0028%     | 0.0840%               |               |     |         |             | X                     | Y                        | \$665,827            | Player diagnosed with Level 1.5   |
| 2026      | 56  | 0.7570% | 0.0133% | 0.1308% | 0.0028%     | 0.0978%               |               |     |         |             |                       | N                        |                      |                                   |
| 2027      | 57  | 0.8280% | 0.0123% | 0.1435% | 0.0028%     | 0.1079%               |               |     |         |             |                       | N                        |                      |                                   |
| 2028      | 58  | 0.9060% | 0.0123% | 0.1573% | 0.0028%     | 0.1137%               |               |     |         |             | X                     | Y                        | \$513,154            | Player diagnosed with Level 2.0   |
| 2029      | 59  | 0.9910% | 0.0122% | 0.1725% | 0.0028%     | 0.1143%               |               |     |         |             |                       | N                        |                      |                                   |
| 2030      | 60  | 1.0860% | 0.0113% | 0.1891% | 0.0028%     | 0.1233%               |               |     |         |             |                       | N                        |                      |                                   |
| 2031      | 61  | 1.1920% | 0.0104% | 0.1982% | 0.0028%     | 0.1341%               |               |     |         |             |                       | N                        |                      |                                   |
| 2032      | 62  | 1.3110% | 0.0095% | 0.2082% | 0.0028%     | 0.1577%               |               |     |         |             |                       | N                        |                      |                                   |
| 2033      | 63  | 1.4440% | 0.0102% | 0.2192% | 0.0028%     | 0.1989%               |               |     |         |             |                       | N                        |                      |                                   |
| 2034      | 64  | 1.5900% | 0.0102% | 0.2312% | 0.0028%     | 0.2643%               |               |     |         |             | 0.0033%               | N                        |                      |                                   |
| 2035      | 65  | 1.7530% | 0.0095% | 0.2444% | 0.0028%     | 0.3320%               |               |     |         |             |                       | N                        |                      |                                   |
| 2036      | 66  | 1.9320% | 0.0097% | 0.2589% | 0.0028%     | 0.4022%               |               |     |         |             |                       | N                        |                      |                                   |
| 2037      | 67  | 2.1220% | 0.0087% | 0.2747% | 0.0028%     | 0.4674%               |               |     |         |             | 0.0042%               | N                        |                      |                                   |
| 2038      | 68  | 2.3230% | 0.0102% | 0.2921% | 0.0028%     | 0.5224%               |               |     |         |             | 0.0046%               | N                        |                      |                                   |
| 2039      | 69  | 2.5380% | 0.0097% | 0.3112% | 0.0028%     | 0.5625%               |               |     |         |             | 0.0049%               | N                        |                      |                                   |
| 2040      | 70  | 2.7850% | 0.0098% | 0.3321% | 0.0028%     | 0.6032%               |               |     |         |             |                       | N                        |                      |                                   |
| 2041      | 71  | 3.0590% | 0.0101% | 0.3739% | 0.0028%     | 0.6409%               |               |     |         |             | X                     | Y                        | \$0                  | Player diagnosed with Alzheimer's |
| 2042      | 72  | 3.3430% | 0.0105% | 0.4232% | 0.0028%     | 0.7023%               |               |     |         |             |                       | N                        |                      |                                   |
| 2043      | 73  | 3.6330% | 0.0107% | 0.4811% | 0.0028%     | 0.7932%               |               |     |         |             |                       | N                        |                      |                                   |
| 2044      | 74  | 3.9420% | 0.0117% | 0.5493% | 0.0028%     | 0.9205%               |               |     |         |             |                       | N                        |                      |                                   |
| 2045      | 75  | 4.2990% | 0.0123% | 0.6295% | 0.0028%     | 1.0630%               |               |     |         |             |                       | N                        |                      |                                   |
| 2046      | 76  | 4.7150% | 0.0126% | 0.7238% | 0.0028%     | 1.2215%               |               |     |         |             |                       | Deceased                 |                      | Player deceased                   |

### Hypothetical Player Case Profile #7

|                            |             |
|----------------------------|-------------|
| Disease Diagnosed          | ALS         |
| Age at Diagnosis           | 76          |
| Years played               | 6           |
| Year of Compensations      | 2046        |
| Total Nominal Compensation | \$2,210,566 |

Life Cycle Modeling For Individual Former NFL Player

| Incidence |     |         |         |         |             |             |           |                      |                 | Outcome |  |  |  |
|-----------|-----|---------|---------|---------|-------------|-------------|-----------|----------------------|-----------------|---------|--|--|--|
| Natural   |     |         |         |         | Adverse     |             |           |                      |                 |         |  |  |  |
| Year      | Age | Death   | ALS     | Suicide | Parkinson's | Alzheimer's | Level 1.5 | Nominal Compensation | Comments        |         |  |  |  |
|           |     |         |         |         |             |             |           |                      |                 |         |  |  |  |
| 2014      | 44  | 0.3350% | 0.0115% | 0.0433% | 0.0028%     | 0.0057%     |           |                      |                 |         |  |  |  |
| 2015      | 45  | 0.3630% | 0.0118% | 0.0475% | 0.0028%     | 0.0057%     |           |                      |                 |         |  |  |  |
| 2016      | 46  | 0.3920% | 0.0129% | 0.0521% | 0.0028%     | 0.0051%     |           |                      |                 |         |  |  |  |
| 2017      | 47  | 0.4180% | 0.0120% | 0.0571% | 0.0028%     | 0.0058%     |           |                      |                 |         |  |  |  |
| 2018      | 48  | 0.4380% | 0.0129% | 0.0626% | 0.0028%     | 0.0087%     |           |                      |                 |         |  |  |  |
| 2019      | 49  | 0.4570% | 0.0130% | 0.0687% | 0.0028%     | 0.0125%     |           |                      |                 |         |  |  |  |
| 2020      | 50  | 0.4780% | 0.0122% | 0.0753% | 0.0028%     | 0.0181%     |           |                      |                 |         |  |  |  |
| 2021      | 51  | 0.5040% | 0.0132% | 0.0825% | 0.0028%     | 0.0258%     |           |                      |                 |         |  |  |  |
| 2022      | 52  | 0.5380% | 0.0127% | 0.0905% | 0.0028%     | 0.0362%     |           |                      |                 |         |  |  |  |
| 2023      | 53  | 0.5800% | 0.0133% | 0.0992% | 0.0028%     | 0.0500%     |           |                      |                 |         |  |  |  |
| 2024      | 54  | 0.6320% | 0.0125% | 0.1088% | 0.0028%     | 0.0680%     |           |                      |                 |         |  |  |  |
| 2025      | 55  | 0.6910% | 0.0122% | 0.1193% | 0.0028%     | 0.0840%     |           |                      |                 |         |  |  |  |
| 2026      | 56  | 0.7570% | 0.0133% | 0.1308% | 0.0028%     | 0.0978%     |           |                      |                 |         |  |  |  |
| 2027      | 57  | 0.8280% | 0.0123% | 0.1435% | 0.0028%     | 0.1079%     |           |                      |                 |         |  |  |  |
| 2028      | 58  | 0.9060% | 0.0123% | 0.1573% | 0.0028%     | 0.1137%     |           |                      |                 |         |  |  |  |
| 2029      | 59  | 0.9910% | 0.0122% | 0.1725% | 0.0028%     | 0.1143%     |           |                      |                 |         |  |  |  |
| 2030      | 60  | 1.0860% | 0.0113% | 0.1891% | 0.0028%     | 0.1233%     |           |                      |                 |         |  |  |  |
| 2031      | 61  | 1.1920% | 0.0104% | 0.1982% | 0.0028%     | 0.1341%     |           |                      |                 |         |  |  |  |
| 2032      | 62  | 1.3110% | 0.0095% | 0.2082% | 0.0028%     | 0.1577%     |           |                      |                 |         |  |  |  |
| 2033      | 63  | 1.4440% | 0.0102% | 0.2192% | 0.0028%     | 0.1989%     |           |                      |                 |         |  |  |  |
| 2034      | 64  | 1.5900% | 0.0102% | 0.2312% | 0.0028%     | 0.2643%     |           |                      |                 |         |  |  |  |
| 2035      | 65  | 1.7530% | 0.0095% | 0.2444% | 0.0028%     | 0.3320%     |           |                      |                 |         |  |  |  |
| 2036      | 66  | 1.9320% | 0.0097% | 0.2589% | 0.0028%     | 0.4022%     |           |                      |                 |         |  |  |  |
| 2037      | 67  | 2.1220% | 0.0087% | 0.2747% | 0.0028%     | 0.4674%     |           |                      |                 |         |  |  |  |
| 2038      | 68  | 2.3230% | 0.0102% | 0.2921% | 0.0028%     | 0.5244%     |           |                      |                 |         |  |  |  |
| 2039      | 69  | 2.5380% | 0.0097% | 0.3112% | 0.0028%     | 0.5629%     |           |                      |                 |         |  |  |  |
| 2040      | 70  | 2.7850% | 0.0098% | 0.3321% | 0.0028%     | 0.6032%     |           |                      |                 |         |  |  |  |
| 2041      | 71  | 3.0590% | 0.0101% | 0.3759% | 0.0028%     | 0.6409%     |           |                      |                 |         |  |  |  |
| 2042      | 72  | 3.3430% | 0.0105% | 0.4232% | 0.0028%     | 0.7023%     |           |                      |                 |         |  |  |  |
| 2043      | 73  | 3.6330% | 0.0107% | 0.4811% | 0.0028%     | 0.7932%     |           |                      |                 |         |  |  |  |
| 2044      | 74  | 3.9420% | 0.0117% | 0.5493% | 0.0028%     | 0.9205%     |           |                      |                 |         |  |  |  |
| 2045      | 75  | 4.2990% | 0.0123% | 0.6295% | 0.0028%     | 1.0630%     |           |                      |                 |         |  |  |  |
| 2046      | 76  | 4.7150% | 0.0126% | 0.7238% | 0.0028%     | 1.2215%     |           |                      |                 |         |  |  |  |
| 2047      | 77  | 5.1840% | 0.0132% | 0.8347% | 0.0028%     | 1.3765%     |           |                      |                 |         |  |  |  |
| 2048      | 78  | 5.7110% | 0.0131% | 0.9652% | 0.0028%     | 1.5332%     |           |                      |                 |         |  |  |  |
| 2049      | 79  | 6.3050% | 0.0131% | 1.1187% | 0.0028%     | 1.6889%     |           |                      |                 |         |  |  |  |
| 2050      | 80  | 6.9780% | 0.0139% | 1.2993% | 0.0028%     | 1.8569%     |           |                      |                 |         |  |  |  |
| 2051      | 81  | 7.7380% | 0.0155% | 1.4467% | 0.0028%     | 2.0369%     |           |                      |                 |         |  |  |  |
| 2052      | 82  | 8.5960% | 0.0152% | 1.6123% | 0.0028%     | 2.2602%     |           |                      |                 |         |  |  |  |
|           |     |         |         |         |             |             |           |                      | Player deceased |         |  |  |  |



|                                   |             |
|-----------------------------------|-------------|
| <b>Disease Diagnosed</b>          | Alzheimer's |
| <b>Age at Diagnosis</b>           | 59          |
| <b>Years played</b>               | 2           |
| <b>Year of Compensation</b>       | 2029        |
| <b>Total Nominal Compensation</b> | \$587,552   |

# Life Cycle Modeling For Individual Former NFL Player

[illegible]

| Nominal Compensation | Comments                          |
|----------------------|-----------------------------------|
|                      |                                   |
|                      |                                   |
|                      |                                   |
|                      |                                   |
|                      |                                   |
|                      |                                   |
|                      |                                   |
|                      |                                   |
|                      |                                   |
|                      |                                   |
|                      |                                   |
| \$587,552            | Player diagnosed with Alzheimer's |
|                      |                                   |
|                      |                                   |
|                      |                                   |
|                      |                                   |
|                      | player deceased                   |

|                                   |               |
|-----------------------------------|---------------|
| <b>Disease Diagnosed</b>          | Level 1.5 & 2 |
| <b>Age at Diagnosis</b>           | 62, 65        |
| <b>Years played</b>               | 5+            |
| <b>Year of Compensation</b>       | 2032, 2035    |
| <b>Total Nominal Compensation</b> | \$710,996     |

# Life Cycle Modeling For Individual Former NFL Player

| Outcome          |     |         |             |                          |                                | Adverse |
|------------------|-----|---------|-------------|--------------------------|--------------------------------|---------|
| Natural<br>Death | ALS | Suicide | Parkinson's | Alzheimer's<br>Level 1.5 | Level 2/<br>Diagnosis<br>(Y/N) |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          | N                              |         |
|                  |     |         |             |                          |                                |         |

| Nominal Compensation | Comments                           |
|----------------------|------------------------------------|
|                      |                                    |
|                      |                                    |
|                      |                                    |
|                      |                                    |
|                      |                                    |
|                      |                                    |
|                      |                                    |
|                      |                                    |
|                      |                                    |
|                      |                                    |
|                      |                                    |
|                      |                                    |
|                      |                                    |
| \$422,475            | Player diagnosed with Level 1.5    |
|                      |                                    |
| \$288,521            | Player diagnosed with Level 2      |
|                      |                                    |
|                      |                                    |
|                      |                                    |
|                      |                                    |
|                      |                                    |
|                      |                                    |
|                      |                                    |
|                      | Player deceased from natural cause |

Privileged and Confidential

## Hypothetical Player Case Profile #10

|                            |               |
|----------------------------|---------------|
| Disease Diagnosed          | Level 1.5 & 2 |
| Age at Diagnosis           | 72, 75        |
| Years played               | 6             |
| Year of Compensation       | 2042, 2045    |
| Total Nominal Compensation | \$248,759     |

Life Cycle Modeling For Individual Former NFL Player

|      |     | Incidence        |         |         |             | Outcome     |           |                  |     | Adverse<br>Diagnosis<br>Level 2/<br>Level 1.5<br>(Y/N) | Nominal<br>Compensation | Comments                           |
|------|-----|------------------|---------|---------|-------------|-------------|-----------|------------------|-----|--------------------------------------------------------|-------------------------|------------------------------------|
| Year | Age | Natural<br>Death | ALS     | Suicide | Parkinson's | Alzheimer's | Level 1.5 | Natural<br>Death | ALS | Suicide                                                | Parkinson's             | Alzheimer's                        |
| 2014 | 44  | 0.3350%          | 0.0115% | 0.0433% | 0.0028%     | 0.0057%     | 0.0003%   |                  |     |                                                        |                         |                                    |
| 2015 | 45  | 0.3630%          | 0.0118% | 0.0475% | 0.0028%     | 0.0057%     | 0.0003%   |                  |     |                                                        |                         |                                    |
| 2016 | 46  | 0.3920%          | 0.0129% | 0.0521% | 0.0028%     | 0.0051%     | 0.0004%   |                  |     |                                                        |                         |                                    |
| 2017 | 47  | 0.4180%          | 0.0120% | 0.0571% | 0.0028%     | 0.0058%     | 0.0004%   |                  |     |                                                        |                         |                                    |
| 2018 | 48  | 0.4380%          | 0.0129% | 0.0626% | 0.0028%     | 0.0087%     | 0.0005%   |                  |     |                                                        |                         |                                    |
| 2019 | 49  | 0.4570%          | 0.0130% | 0.0667% | 0.0028%     | 0.0125%     | 0.0005%   |                  |     |                                                        |                         |                                    |
| 2020 | 50  | 0.4780%          | 0.0122% | 0.0753% | 0.0028%     | 0.0181%     | 0.0006%   |                  |     |                                                        |                         |                                    |
| 2021 | 51  | 0.5040%          | 0.0132% | 0.0825% | 0.0028%     | 0.0258%     | 0.0007%   |                  |     |                                                        |                         |                                    |
| 2022 | 52  | 0.5380%          | 0.0127% | 0.0905% | 0.0028%     | 0.0362%     | 0.0008%   |                  |     |                                                        |                         |                                    |
| 2023 | 53  | 0.5800%          | 0.0135% | 0.0992% | 0.0028%     | 0.0500%     | 0.0009%   |                  |     |                                                        |                         |                                    |
| 2024 | 54  | 0.6320%          | 0.0125% | 0.1088% | 0.0028%     | 0.0680%     | 0.0010%   |                  |     |                                                        |                         |                                    |
| 2025 | 55  | 0.6910%          | 0.0122% | 0.1193% | 0.0028%     | 0.0840%     | 0.0011%   |                  |     |                                                        |                         |                                    |
| 2026 | 56  | 0.7570%          | 0.0133% | 0.1308% | 0.0028%     | 0.0978%     | 0.0013%   |                  |     |                                                        |                         |                                    |
| 2027 | 57  | 0.8280%          | 0.0123% | 0.1435% | 0.0028%     | 0.1079%     | 0.0015%   |                  |     |                                                        |                         |                                    |
| 2028 | 58  | 0.9060%          | 0.0129% | 0.1573% | 0.0028%     | 0.1137%     | 0.0017%   |                  |     |                                                        |                         |                                    |
| 2029 | 59  | 0.9910%          | 0.0122% | 0.1725% | 0.0028%     | 0.1143%     | 0.0020%   |                  |     |                                                        |                         |                                    |
| 2030 | 60  | 1.0860%          | 0.0113% | 0.1891% | 0.0028%     | 0.1233%     | 0.0023%   |                  |     |                                                        |                         |                                    |
| 2031 | 61  | 1.1920%          | 0.0104% | 0.1982% | 0.0028%     | 0.1341%     | 0.0025%   |                  |     |                                                        |                         |                                    |
| 2032 | 62  | 1.3110%          | 0.0095% | 0.2082% | 0.0028%     | 0.1577%     | 0.0028%   |                  |     |                                                        |                         |                                    |
| 2033 | 63  | 1.4440%          | 0.0102% | 0.2192% | 0.0028%     | 0.1989%     | 0.0030%   |                  |     |                                                        |                         |                                    |
| 2034 | 64  | 1.5900%          | 0.0102% | 0.2312% | 0.0028%     | 0.2643%     | 0.0033%   |                  |     |                                                        |                         |                                    |
| 2035 | 65  | 1.7530%          | 0.0095% | 0.2444% | 0.0028%     | 0.3320%     | 0.0036%   |                  |     |                                                        |                         |                                    |
| 2036 | 66  | 1.9320%          | 0.0097% | 0.2589% | 0.0028%     | 0.4022%     | 0.0039%   |                  |     |                                                        |                         |                                    |
| 2037 | 67  | 2.1220%          | 0.0087% | 0.2747% | 0.0028%     | 0.4674%     | 0.0042%   |                  |     |                                                        |                         |                                    |
| 2038 | 68  | 2.3230%          | 0.0102% | 0.2921% | 0.0028%     | 0.5224%     | 0.0046%   |                  |     |                                                        |                         |                                    |
| 2039 | 69  | 2.5380%          | 0.0097% | 0.3112% | 0.0028%     | 0.5629%     | 0.0049%   |                  |     |                                                        |                         |                                    |
| 2040 | 70  | 2.7850%          | 0.0096% | 0.3321% | 0.0028%     | 0.6032%     | 0.0053%   |                  |     |                                                        |                         |                                    |
| 2041 | 71  | 3.0590%          | 0.0101% | 0.3739% | 0.0028%     | 0.6409%     | 0.0058%   |                  |     |                                                        |                         |                                    |
| 2042 | 72  | 3.3430%          | 0.0105% | 0.4232% | 0.0028%     | 0.7023%     | 0.0063%   |                  |     | X                                                      |                         | Player diagnosed with Level 1.5    |
| 2043 | 73  | 3.6330%          | 0.0107% | 0.4811% | 0.0028%     | 0.7932%     | 0.0069%   |                  |     |                                                        |                         |                                    |
| 2044 | 74  | 3.9420%          | 0.0117% | 0.5493% | 0.0028%     | 0.9205%     | 0.0075%   |                  |     |                                                        |                         |                                    |
| 2045 | 75  | 4.2990%          | 0.0127% | 0.6295% | 0.0028%     | 1.0630%     | 0.0082%   |                  |     | X                                                      |                         | Player diagnosed with Level 2      |
| 2046 | 76  | 4.7150%          | 0.0126% | 0.7238% | 0.0028%     | 1.2215%     | 0.0084%   |                  |     |                                                        |                         |                                    |
| 2047 | 77  | 5.1840%          | 0.0132% | 0.8347% | 0.0028%     | 1.3765%     | 0.0086%   | X                |     |                                                        |                         | Player deceased from natural cause |
| 2048 | 78  | 5.7110%          | 0.0110% | 0.9652% | 0.0028%     | 1.5332%     | 0.0089%   |                  |     |                                                        |                         |                                    |

JA4529

|                            |             |
|----------------------------|-------------|
| Disease Diagnosed          | ALS         |
| Age at Diagnosis           | 65          |
| Years played               | 3           |
| Year of Compensation       | 2035        |
| Total Nominal Compensation | \$2,504,487 |

JA4530

| Outcome       |     |         |             |             |           | Adverse                   |
|---------------|-----|---------|-------------|-------------|-----------|---------------------------|
| Natural Death | ALS | Suidice | Parkinson's | Alzheimer's | Level 1.5 | Diagnosis Level 2/<br>Y/N |
|               |     |         |             |             |           | N                         |
|               |     |         |             |             |           | N                         |
|               |     |         |             |             |           | N                         |
|               |     |         |             |             |           | N                         |
|               |     |         |             |             |           | N                         |
|               |     |         |             |             |           | N                         |
|               |     |         |             |             |           | N                         |
|               |     |         |             |             |           | N                         |
|               |     |         |             |             |           | N                         |
|               |     |         |             |             |           | N                         |
|               |     |         |             |             |           | N                         |
|               |     |         |             |             |           | N                         |
|               |     |         |             |             |           | N                         |
|               |     |         |             |             |           | N                         |
|               |     |         |             |             |           | N                         |
|               |     |         |             |             |           | N                         |
|               |     |         |             |             |           | N                         |
|               | X   |         |             |             |           | Y                         |
|               |     |         |             |             |           | N                         |
|               |     |         |             |             |           | N                         |
|               |     |         |             |             |           | N                         |
|               |     |         |             |             |           | N                         |
|               |     |         |             |             |           | Deceased                  |

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### Hypothetical Player Case Profile #13

|                            |             |
|----------------------------|-------------|
| Disease Diagnosed          | Parkinson's |
| Age at Diagnosis           | 50          |
| Years played               | 5+          |
| Year of Compensation       | 2020        |
| Total Nominal Compensation | \$2,444,288 |

### Life Cycle Modeling For Individual Former NFL Player

| Incidence |     |         |         | Outcome |             |             |           |                       |       |  |             |                                     |          |
|-----------|-----|---------|---------|---------|-------------|-------------|-----------|-----------------------|-------|--|-------------|-------------------------------------|----------|
| Year      | Age | Natural |         | Natural |             |             |           | Adverse               |       |  |             | Nominal Compensation                | Comments |
|           |     | Death   | ALS     | Suicide | Parkinson's | Alzheimer's | Level 1.5 | Level 2/<br>Diagnosis | (Y/N) |  |             |                                     |          |
| 2014      | 44  | 0.3350% | 0.0115% | 0.0433% | 0.0028%     | 0.0057%     |           |                       |       |  |             |                                     |          |
| 2015      | 45  | 0.3630% | 0.0118% | 0.0475% | 0.0028%     | 0.0057%     |           |                       |       |  |             |                                     |          |
| 2016      | 46  | 0.3920% | 0.0129% | 0.0521% | 0.0028%     | 0.0051%     |           |                       |       |  |             |                                     |          |
| 2017      | 47  | 0.4180% | 0.0120% | 0.0571% | 0.0028%     | 0.0058%     |           |                       |       |  |             |                                     |          |
| 2018      | 48  | 0.4380% | 0.0129% | 0.0626% | 0.0028%     | 0.0087%     |           |                       |       |  |             |                                     |          |
| 2019      | 49  | 0.4570% | 0.0130% | 0.0687% | 0.0028%     | 0.0125%     |           |                       |       |  |             |                                     |          |
| 2020      | 50  | 0.4780% | 0.0122% | 0.0753% | 0.0028%     | 0.0181%     |           |                       |       |  |             |                                     |          |
| 2021      | 51  | 0.5040% | 0.0132% | 0.0825% | 0.0028%     | 0.0258%     | X         |                       |       |  | \$2,444,288 | Player diagnosed with Parkinson's   |          |
| 2022      | 52  | 0.5380% | 0.0127% | 0.0905% | 0.0028%     | 0.0362%     |           |                       |       |  |             |                                     |          |
| 2023      | 53  | 0.5800% | 0.0133% | 0.0992% | 0.0028%     | 0.0500%     |           |                       |       |  |             |                                     |          |
| 2024      | 54  | 0.6320% | 0.0125% | 0.1088% | 0.0028%     | 0.0680%     |           |                       |       |  |             |                                     |          |
| 2025      | 55  | 0.6910% | 0.0122% | 0.1193% | 0.0028%     | 0.0840%     |           |                       |       |  |             |                                     |          |
| 2026      | 56  | 0.7570% | 0.0133% | 0.1308% | 0.0028%     | 0.0978%     |           |                       |       |  |             |                                     |          |
| 2027      | 57  | 0.8280% | 0.0123% | 0.1435% | 0.0028%     | 0.1079%     |           |                       |       |  |             |                                     |          |
| 2028      | 58  | 0.9060% | 0.0123% | 0.1573% | 0.0028%     | 0.1137%     |           |                       |       |  |             |                                     |          |
| 2029      | 59  | 0.9910% | 0.0122% | 0.1725% | 0.0028%     | 0.1143%     |           |                       |       |  |             |                                     |          |
| 2030      | 60  | 1.0860% | 0.0113% | 0.1891% | 0.0028%     | 0.1233%     |           |                       |       |  |             |                                     |          |
| 2031      | 61  | 1.1920% | 0.0104% | 0.1982% | 0.0028%     | 0.1341%     |           |                       |       |  |             |                                     |          |
| 2032      | 62  | 1.3110% | 0.0095% | 0.2082% | 0.0028%     | 0.1577%     |           |                       |       |  |             |                                     |          |
| 2033      | 63  | 1.4440% | 0.0102% | 0.2192% | 0.0028%     | 0.1989%     |           |                       |       |  |             |                                     |          |
| 2034      | 64  | 1.5900% | 0.0102% | 0.2312% | 0.0028%     | 0.2643%     |           |                       |       |  |             |                                     |          |
| 2035      | 65  | 1.7530% | 0.0095% | 0.2444% | 0.0028%     | 0.3320%     |           |                       |       |  |             |                                     |          |
| 2036      | 66  | 1.9320% | 0.0097% | 0.2589% | 0.0028%     | 0.4022%     |           |                       |       |  |             |                                     |          |
| 2037      | 67  | 2.1220% | 0.0087% | 0.2747% | 0.0028%     | 0.4674%     |           |                       |       |  |             |                                     |          |
| 2038      | 68  | 2.3230% | 0.0102% | 0.2921% | 0.0028%     | 0.5224%     | X         |                       |       |  |             | Player deceased from natural causes |          |



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## Hypothetical Player Case Profile #14

|                            |             |
|----------------------------|-------------|
| Disease Diagnosed          | Parkinson's |
| Age at Diagnosis           | 68          |
| Years played               | 4           |
| Year of Compensation       | 2038        |
| Total Nominal Compensation | \$922,546   |

Life Cycle Modeling For Individual Former NFL Player

|      |     | Incidence        |         |         |                            |           | Outcome          |     |         |                            | Adverse<br>Diagnosis<br>(Y/N) | Nominal<br>Compensation | Comments |
|------|-----|------------------|---------|---------|----------------------------|-----------|------------------|-----|---------|----------------------------|-------------------------------|-------------------------|----------|
| Year | Age | Natural<br>Death | ALS     | Suicide | Parkinson's<br>Alzheimer's | Level 1.5 | Natural<br>Death | ALS | Suicide | Parkinson's<br>Alzheimer's | Level 1.5                     |                         |          |
| 2014 | 44  | 0.3350%          | 0.0115% | 0.0433% | 0.0028%                    | 0.0037%   |                  |     |         |                            |                               |                         |          |
| 2015 | 45  | 0.3630%          | 0.0118% | 0.0475% | 0.0028%                    | 0.0037%   |                  |     |         |                            |                               |                         |          |
| 2016 | 46  | 0.3920%          | 0.0129% | 0.0511% | 0.0028%                    | 0.0037%   |                  |     |         |                            |                               |                         |          |
| 2017 | 47  | 0.4180%          | 0.0120% | 0.0571% | 0.0028%                    | 0.0037%   |                  |     |         |                            |                               |                         |          |
| 2018 | 48  | 0.4380%          | 0.0129% | 0.0626% | 0.0028%                    | 0.0037%   |                  |     |         |                            |                               |                         |          |
| 2019 | 49  | 0.4570%          | 0.0130% | 0.0687% | 0.0028%                    | 0.0037%   |                  |     |         |                            |                               |                         |          |
| 2020 | 50  | 0.4780%          | 0.0122% | 0.0753% | 0.0028%                    | 0.0037%   |                  |     |         |                            |                               |                         |          |
| 2021 | 51  | 0.5040%          | 0.0132% | 0.0825% | 0.0028%                    | 0.0037%   |                  |     |         |                            |                               |                         |          |
| 2022 | 52  | 0.5380%          | 0.0127% | 0.0905% | 0.0028%                    | 0.0037%   |                  |     |         |                            |                               |                         |          |
| 2023 | 53  | 0.5800%          | 0.0133% | 0.0992% | 0.0028%                    | 0.0037%   |                  |     |         |                            |                               |                         |          |
| 2024 | 54  | 0.6320%          | 0.0125% | 0.1088% | 0.0028%                    | 0.0037%   |                  |     |         |                            |                               |                         |          |
| 2025 | 55  | 0.6910%          | 0.0122% | 0.1193% | 0.0028%                    | 0.0037%   |                  |     |         |                            |                               |                         |          |
| 2026 | 56  | 0.7570%          | 0.0133% | 0.1308% | 0.0028%                    | 0.0037%   |                  |     |         |                            |                               |                         |          |
| 2027 | 57  | 0.8280%          | 0.0123% | 0.1435% | 0.0028%                    | 0.0037%   |                  |     |         |                            |                               |                         |          |
| 2028 | 58  | 0.9060%          | 0.0123% | 0.1573% | 0.0028%                    | 0.0037%   |                  |     |         |                            |                               |                         |          |
| 2029 | 59  | 0.9910%          | 0.0122% | 0.1725% | 0.0028%                    | 0.0037%   |                  |     |         |                            |                               |                         |          |
| 2030 | 60  | 1.0860%          | 0.0113% | 0.1891% | 0.0028%                    | 0.0037%   |                  |     |         |                            |                               |                         |          |
| 2031 | 61  | 1.1920%          | 0.0104% | 0.1982% | 0.0028%                    | 0.0037%   |                  |     |         |                            |                               |                         |          |
| 2032 | 62  | 1.3110%          | 0.0095% | 0.2082% | 0.0028%                    | 0.0037%   |                  |     |         |                            |                               |                         |          |
| 2033 | 63  | 1.4440%          | 0.0102% | 0.2192% | 0.0028%                    | 0.0037%   |                  |     |         |                            |                               |                         |          |
| 2034 | 64  | 1.5900%          | 0.0102% | 0.2312% | 0.0028%                    | 0.0037%   |                  |     |         |                            |                               |                         |          |
| 2035 | 65  | 1.7530%          | 0.0095% | 0.2444% | 0.0028%                    | 0.0037%   |                  |     |         |                            |                               |                         |          |
| 2036 | 66  | 1.9320%          | 0.0097% | 0.2589% | 0.0028%                    | 0.0037%   |                  |     |         |                            |                               |                         |          |
| 2037 | 67  | 2.1220%          | 0.0087% | 0.2747% | 0.0028%                    | 0.0037%   |                  |     |         |                            |                               |                         |          |
| 2038 | 68  | 2.3230%          | 0.0102% | 0.2921% | 0.0028%                    | 0.0037%   |                  |     |         |                            |                               |                         |          |
| 2039 | 69  | 2.5380%          | 0.0097% | 0.3112% | 0.0028%                    | 0.0037%   |                  |     |         |                            |                               |                         |          |
| 2040 | 70  | 2.7850%          | 0.0098% | 0.3321% | 0.0028%                    | 0.0037%   |                  |     |         |                            |                               |                         |          |
| 2041 | 71  | 3.0590%          | 0.0101% | 0.3739% | 0.0028%                    | 0.0037%   |                  |     |         |                            |                               |                         |          |
| 2042 | 72  | 3.3430%          | 0.0105% | 0.4232% | 0.0028%                    | 0.0037%   |                  |     |         |                            |                               |                         |          |
| 2043 | 73  | 3.6330%          | 0.0107% | 0.4811% | 0.0028%                    | 0.0037%   |                  |     |         |                            |                               |                         |          |



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**Appendix E: List of Deceased Former NFL Players with CTE**

List of Deceased Former NFL Players, Death with CTE (2000 - 2013)

| <u>Player Case No.</u> | <u>Year of Death</u> | <u>Seasons</u> | <u>Age at Death</u> | <u>Co-morbidity</u>  | <u>Filed Plaintiff</u> |
|------------------------|----------------------|----------------|---------------------|----------------------|------------------------|
| 1                      | 2002                 | 17             | 50                  |                      | No                     |
| 2                      | 2004                 | 9              | 36                  |                      | No                     |
| 3                      | 2005                 | 8              | 45                  |                      | No                     |
| 4                      | 2006                 | 12             | 44                  |                      | Yes                    |
| 5                      | 2008                 | 10             | 45                  |                      | Yes                    |
| 6                      | 2008                 | 16             | 66                  | ALS (cause of death) | Yes                    |
| 7                      | 2008                 | 9              | 45                  |                      | Yes                    |
| 8                      | 2009                 | 10             | 82                  |                      | No                     |
| 9                      | 2009                 | 11             | 38                  |                      | Yes                    |
| 10                     | 2009                 | 5              | 26                  |                      | No                     |
| 11                     | 2009                 | 2              | 64                  |                      | Yes                    |
| 12                     | 2009                 | 1              | 75                  | AD                   | Yes                    |
| 13                     | 2009                 | 1              | 49                  | ALS                  | Yes                    |
| 14                     | 2010                 |                | 86                  |                      | No                     |
| 15                     | 2010                 | 10             | 78                  |                      | Yes                    |
| 16*                    | 2010                 | 3              | 36                  |                      | No                     |
| 17                     | 2010                 | 15             | 71                  |                      | No                     |
| 18                     | 2010                 | 7              | 98                  |                      | No                     |
| 19                     | 2010                 | 7              | 56                  |                      | Yes                    |
| 20                     | 2010                 | 1              | 47                  |                      | No                     |
| 21                     | 2010                 | 1              | 23                  |                      | No                     |
| 22*                    | 2010                 | 1              | 87                  |                      | No                     |
| 23                     | 2011                 | 5              | 73                  |                      | No                     |
| 24                     | 2011                 | 11             | 65                  |                      | Yes                    |
| 25                     | 2011                 | 6              | 69                  |                      | Yes                    |
| 26                     | 2011                 | 11             | 50                  |                      | Yes                    |
| 27                     | 2011                 | 8              | 67                  | ALS (2000)           | Yes                    |
| 28                     | 2011                 | 6              | 75                  |                      | No                     |
| 29                     | 2011                 | 13             | 81                  |                      | No                     |
| 30                     | 2011                 | 6              | 77                  |                      | Yes                    |
| 31                     | 2011                 | 2              | 56                  |                      | Yes                    |
| 32*                    | 2011                 |                | 74                  |                      | No                     |
| 33                     | 2011                 | 10             | 69                  | Dementia             | Yes                    |
| 34                     | 2011                 | 15             | 80                  | Dementia             | Yes                    |
| 35                     | 2011                 | 16             | 84                  | Dementia             | No                     |
| 36                     | 2012                 | 0.5            | 52                  | ALS (2002)           | No                     |
| 37*                    | 2012                 |                |                     |                      | No                     |
| 38                     | 2012                 | 8              | 62                  |                      | Yes                    |
| 39                     | 2012                 | 8              | 52                  |                      | No                     |
| 40                     | 2012                 | 2              | 56                  |                      | Yes                    |
| 41                     | 2012                 | 1              | 25                  |                      | No                     |
| 42                     | 2012                 | 21             | 43                  |                      | Yes                    |
| 43                     | 2012                 | 8              | 69                  | Dementia             | Yes                    |
| 44                     | 2012                 | 9              | 78                  |                      | No                     |
| 45                     | 2012                 | 8              | 61                  | Dementia             | Yes                    |
| 46                     | 2013                 | 1              | 30                  |                      | No                     |
| 47                     | 2013                 | 6              | 70                  |                      | No                     |
| 48                     | 2013                 | 9              | 75                  |                      | Yes                    |
| 49                     | 2012                 | 10             | 68                  |                      | Yes                    |
| 50                     | 2008                 | 7              | 52                  |                      | No                     |

\*Player data could not be matched to player database and no secondary confirmation of NFL affiliation could be found and therefore was not included in the analysis.

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**Appendix F: CV of Thomas Vasquez Ph.D.**

Dr. Vasquez is a vice president at Analysis, Research, Planning Corporation (ARPC) in the New York office. Dr. Vasquez has over 35 years of experience in management consulting for private sector clients, the development of economic models for US and foreign governments to analyze and develop tax, expenditure and regulatory policy and providing expert testimony over a wide range of issues.

Dr. Vasquez has provided management consulting services for private sector companies in a wide array of industry sectors. The services include identifying methods to: (1) increase the stock price or value of the company; (2) leverage the firm's brand asset; (3) assist underperforming companies and (4) provide general valuation services.

Dr. Vasquez has assisted US and foreign governments in the development of tax, expenditure and regulatory policy. The services include the development of large scale micro-economic models to allow policymakers to determine individual and company behavioral reactions to tax and regulatory policy.

Dr. Vasquez has provided expert testimony, depositions and analytical litigation support on a broad spectrum of issues involving statistical techniques, computer simulation, economic behavior and economic models, including, among others:

- Using statistical models to forecast a company's future liability from lawsuits related to its former production of asbestos including the following representative assignments – National Gypsum Corporation, the Fibreboard Corporation, Owens Corning, Congoleum, Western MacArthur, Burns and Roe, Inc. and Specialty Products Holding Corp.,
- Using statistical models to forecast a company's future liability from lawsuits related to its former sales of insurance products.
- The statistical analysis of the determinants of supply and demand in certain industry segments for use in business valuations before the Bankruptcy Court.
- The impact of regulation and tax policy on prices, sales and production.
- Analyzing the allocation of liability from a state's superfund tax.
- The statistical analysis of reasonable officer compensation levels in closely held companies.

Prior to joining ARPC, Dr. Vasquez was president and CEO of Yankelovich Partners, Inc., a leading market research firm. While at Yankelovich Partners, Dr. Vasquez had responsibility for engagements designed to determine the best approach to maximize the value of the client's firm. These engagements involved understanding the source of the value components of the firm – value of the firm's brand, product/service lines responsible for increasing (decreasing) stock price, the role of joint products and other key components of the firm's value.

From 1993 to 1997, Dr. Vasquez was the National Partner in Charge of Corporate Transactions Services for KPMG Peat Marwick. In this role he practiced in and led four of KPMG's national practices. One practice area was in the area of litigation support. This area involved almost exclusively the use of highly trained professionals in providing expert testimony in a wide range

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of litigation issues. The second practice area involved providing consulting services in the bankruptcy and troubled company area. This area involved analyzing the condition and prospects of a company in financial distress, generally involving recommendations for expense control, revenue growth, elimination/sale of product and distribution lines and the elimination/selling of production sites. The third area is investment banking. This area focused on three major components: (1) buying and/or selling of companies for middle market clients; (2) advise to non-public clients preparing an Initial Public Offering, and (3) advise to clients on methods to increase share price and/or cash flow in anticipation of sale. The fourth area was business valuation. This area focused on the valuation of businesses in a wide range of settings including bankruptcy, fairness opinions, mergers and acquisitions, estate planning and other venues requiring valuation services.

Dr. Vasquez served on the Firm's Board of Directors from 1993 to 1997 and served as the Chairman of the Board's Strategic Planning Committee.

Prior to selling his firm to KPMG, Dr. Vasquez was the founder and President of the Policy Economics Group. Dr. Vasquez was responsible for all data base development and tax simulation modeling for federal and state government clients in the United States as well as foreign governments including among others Egypt, Pakistan, Hungary, the former Soviet Union, Trinidad-Tobago, Virgin Islands, Guam, El Salvador and Guatemala. Dr. Vasquez also developed similar models using specialized industry data bases to determine tax impacts and behavioral responses for commercial firms, industry associations and law firms. These models were also used to formulate the client's strategic direction, market initiatives and value maximization strategies.

Prior to establishing the Policy Economics Group, Dr. Vasquez was the Deputy Director for the U.S. Department of the Treasury Office of Tax Analysis. While there, he guided U.S. tax policy analysis and designed large micro-simulation models and data bases for the U.S. Treasury Department and the Joint Tax Committee of the U.S. Congress. He appeared before Congress to provide testimony on such issues as capital gains taxation. He also designed numerous specialized models and data bases for analyzing policy issues at the company, industry, and individual levels.

#### **Professional Experience:**

President and CEO, Yankelovich Partners Inc., 1997 to 1999  
 National Partner in Charge, Corporate Transactions Services, KPMG Peat Marwick, 1993 to 1997.  
 Managing Partner, Policy Economics Group, KPMG Peat Marwick, 1987 to 1993.  
 Founder and President, Policy Economics Group, 1983 to 1987.  
 Deputy Director, Office of Tax Analysis, U.S. Department of the Treasury, 1979 to 1983.  
 Assistant Director, 1978 to 1979; Fiscal Economist, 1972 to 1976.  
 Chief Economist, New York State Economic Development Board, 1977 to 1978.  
 Staff Economist, Congressional Joint Committee on Taxation, 1976.  
 Staff Economist, American Enterprise Institute for Public Policy Research, 1972.

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**Education:**

Ph.D., Economics, Clark University, 1973.  
M.A., Economics, Clark University, 1972.  
B.S., Mathematics, State University of New York - Potsdam, 1970.

**Legal Experience and Testimony:**

National Gypsum Company Bankruptcy Proceedings, 1991  
Deposition  
Testimony  
Gerald Ahern, et. al. vs. Fiberboard Corporation, et. al., 1994  
Deposition  
Testimony  
Ezell Thomas, et. al. vs. R.J. Reynolds Tobacco Company, et. al., 1999  
Deposition  
Fiberboard Corporation and Owens Corning vs. R.J.Reynolds Tobacco Company, et. al., 1999  
Deposition  
Western Mac Arthur Company and Mac Arthur Company vs. General Accident Insurance Co. of America; United States Fidelity & Guaranty Co.; Argonaut Insurance Company, 1999  
Affidavit  
CSX Transportation, Inc. and American Home Ins. Co., 2000  
Deposition  
ADR Proceeding Celotex vs. Travelers Casualty and Surety Co. and London Market Insurers, 2000  
Deposition, 2004  
Testimony, 2004  
Owens Corning Bankruptcy Proceedings, 2001  
Deposition, 2004  
Trial Testimony, 2005  
Michael Albanese vs. Compaq Computer Corporation, 2002  
Affidavit  
ADR Proceeding ACandS, Inc. vs. Travelers Casualty and Surety Co., 2003  
ASARCO vs  
Deposition, 2003  
Western Mac Arthur Company and Mac Arthur Company Bankruptcy Proceedings, 2003  
Oglebay Norton Bankruptcy Proceedings, 2004  
Deposition, 2004  
Trial Testimony, 2004  
Halliburton Bankruptcy Proceedings, 2004  
Congoleum vs Ace Ins. Et al, 2005  
Deposition, 2005  
Trial Testimony, 2006  
Gene B. Griego, et al., Plaintiffs, vs. Bechtel National, Inc. et al., Defendants  
Deposition, 2005  
Sandra Sue Fullen, et al, Plaintiffs v. Philips Electronics North America Corporation, a Delaware corporation, et al., Defendants  
Deposition, 2005

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St. Paul Fire and Marine Insurance Company, Plaintiff, vs. A.P.I., Inc., Defendant and Counter-Claimant

Deposition, 2005

Dana Corporation Bankruptcy Proceedings, Case No. 06-10354(BLR), 2007

Deposition, 2007

Trial Testimony, 2007

API, INC. Asbestos Settlement Trust v. Atlantic Mutual Insurance Company; Civil No. 09-0665 (JRT/JJG); United States District Court, D. Minnesota; July 9, 2010.

Deposition, 2010

Applebee's International, Inc., DineEquity, Inc. and Weight Watchers International, Inc. Sheree Shepard and Anthony Watts, On Behalf of Themselves and All Others Similarly Situated vs. DineEquity, Inc. et al.; United States District Court; District of Kansas; No. 08-cv-2416.

Deposition, 2010

API, Inc. Asbestos Settlement trust, et al. v. Zurich American Insurance Company, et al. Court File No. 09-CV-975 (JRT/JJG)

Deposition, March 29, 2011

Tronox Incorporated, Tronox Worldwide, LLC f/k/a; Kerr-McGee Chemical Worldwide LLC, and Tronox, LLC, f/k/a Kerr-McGee Chemical LLC vs. Anadarko Petroleum Corporation and Kerr-McGee Corporation

Deposition 2012

Specialty Products Holding Corp., et al Bankruptcy proceedings, Case No. 10-11780(JFK), 2012

Deposition, 2012

Trial Testimony, 2013



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November 14, 2014

The Honorable Anita B. Brody  
U.S. District Judge  
7613 U.S. Courthouse  
601 Market Street  
Philadelphia, PA 19106

Re: *In re National Football League Concussion Injury Litigation*,  
No. 2:12-md-2323

Dear Judge Brody:

Consistent with your directions, we have consulted with the various objectors who raise issues different from the MoloLamken Objection. We have attempted to arrange a schedule that will allow the presentation of issues the others wish raised at the hearing, as well as allow those counsel wishing to address the Court on points not raised in the MoloLamken Objection to do so.

I have advised all counsel of your admonition that no one is to address points made by other objecting counsel and that they may voice support by saying, "I adopt counsel's objection."

Please note that the allocations are consistent with the 2 hours and 15 minutes the Court had budgeted for the presentation of the MoloLamken Objection, as well as the other objections by counsel. The schedule is as follows:

1. Steven Molo and Martin Totaro of MoloLamken will speak for 55 minutes and 10 minutes respectively, and address the issues raised in the MoloLamken Objection.

Total time for MoloLamken Objection: 65 minutes.

2. Thomas Demetrio and William Gibbs of Corboy & Demetrio will speak for 10 and 5 minutes respectively, and address how the Settlement release is too broad, the qualifying diseases are too few, and the Settlement provides inadequate compensation for qualifying diagnoses.

The Honorable Anita B. Brody

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November 14, 2014

3. Thomas Wiegand of MoloLamken will speak for 10 minutes and address how testing requirements are too onerous and how the Settlement fails to properly account for the fact that the date of diagnosis may be later than the date of the onset of the qualifying illness, but a class member's age offset is determined by the date of diagnosis.<sup>1</sup>

4. John Pentz will speak for 10 minutes and address how Settlement funds can be improperly depleted.

5. Lance Lubel of Lubel Voyles will speak for 15 minutes and address improper restrictions based on Qualifying Diagnoses, age, and career length.

6. Michael Rosenthal of Rosenthal Lurie will speak for 5 minutes and address the lack of credit for preseason and time spent on injured reserve.

7. Parag Shah of Shah Law Firm will speak for 5 minutes and address the Settlement's overly demanding medical records requirements.

8. Glenn Manochi of Lightman Law Firm will speak for 10 minutes and address how the class representatives were not properly informed of the terms of the Settlement and did not sufficiently analyze Class Counsel's decisions; and will address how the Settlement results in improper cy pres distribution.

Total Time for Other Objections: 70 minutes.

Additionally, we ask that six individual class members who have stated an intention to speak be allowed to do so for 5 minutes each. I note that one of the individuals listed below, Tregg Duerson, is represented by Mr. Demetrio, who represents numerous class members who will not be addressing the Court. We are aware that the Court expressed the view that represented class members whose counsel are addressing the Court should not speak. However, we are asking the Court's indulgence to allow this one individual to do so for 5 minutes. In the context of this day-long hearing, in which the object is to address the fairness of the proposed settlement, we respectfully suggest 5 minutes allotted to this son of a former well-known player will in no way diminish the proceedings and should be allowed.

1. Ben Utecht
2. Mary Hawkins

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<sup>1</sup> The Armstrong Objection addresses the onerous testing requirement issue, and the Barber and Owens Objections address the issue of age – arguments that MoloLamken adopts. Due to scheduling conflicts and by agreement of objectors' counsel, Mr. Wiegand will make this argument.



The Honorable Anita B. Brody

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November 14, 2014

3. Rebecca Carpenter
4. Gene Moore
5. Tregg Duerson
6. Eleanor Perfetto

Total Time for Individual Class Members: 30 minutes.

I note that there is an open issue before the Court concerning whether Edward Stone will be allowed to speak on behalf of the Barber Objectors. Class counsel has moved to bar him from doing so due to the timing of his notice to appear.

We respectfully ask that the settling parties provide a similar schedule.

While perhaps not perfect, we believe that this schedule will allow for the orderly presentation of issues given the format the Court has chosen to follow. Should anything change prior to the hearing, we will inform the Court. I will make myself available to discuss this with the Court and counsel for the settling parties should you determine such further consultation would be useful.

Respectfully submitted,

/s/ Steven F. Molo

Steven F. Molo

Cc: Christopher Seeger (via ECF)  
Brad Karp (via ECF)

**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF PENNSYLVANIA**

IN RE: NATIONAL FOOTBALL  
LEAGUE PLAYERS' CONCUSSION  
INJURY LITIGATION

No. 2:12-md-02323-AB

MDL No. 2323

**Hon. Anita B. Brody**

THIS DOCUMENT RELATES TO:  
ALL ACTIONS

**NOTICE**

The following counsel have filed timely notice and will be permitted to speak at the

November 19 Fairness Hearing:

| <b>Counsel</b>     | <b>Allocated Time</b> |
|--------------------|-----------------------|
| Christopher Seeger | 90 Minutes            |
| Brad Karp          | 30 Minutes            |
| Steven Molo        | 55 Minutes            |
| Martin Totaro      | 5 Minutes             |
| Thomas Demetrio    | 10 Minutes            |
| William Gibbs      | 5 Minutes             |
| Thomas Wiegand     | 10 Minutes            |
| John Pentz         | 10 Minutes            |
| Lance Lubel        | 15 Minutes            |
| Michael Rosenthal  | 5 Minutes             |
| Parag Shah         | 5 Minutes             |
| Glenn Manochi      | 10 Minutes            |

The following Retired NFL Players, Representative Claimants, and Derivative Claimants  
have filed timely notice and will be permitted to speak at the November 19 Fairness Hearing:

| <b>Individual</b>  | <b>Allocated Time</b> |
|--------------------|-----------------------|
| Eugene Moore       | 5 Minutes             |
| Mary Hawkins       | 5 Minutes             |
| Eleanor Perfetto   | 5 Minutes             |
| Benjamin J. Utecht | 5 Minutes             |
| John B. Erickson   | 5 Minutes             |
| Rebecca Carpenter  | 5 Minutes             |

Mr. Seeger and Mr. Karp will also have 45 minutes combined to respond to the positions of the objectors.

s/Anita B. Brody

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ANITA B. BRODY, J.

Copies **VIA ECF** on \_\_\_\_\_ to:

Copies **MAILED** on \_\_\_\_\_ to:

**UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF PENNSYLVANIA**

IN RE: NATIONAL FOOTBALL  
LEAGUE PLAYERS' CONCUSSION  
INJURY LITIGATION

No. 2:12-md-02323-AB  
MDL No. 2323

Kevin Turner and Shawn Wooden,  
*on behalf of themselves and  
others similarly situated,*

Civil Action No. 2:14-cv-00029-AB

Plaintiffs,

v.

National Football League and  
NFL Properties, LLC,  
successor-in-interest to  
NFL Properties, Inc.,

Defendants.

THIS DOCUMENT RELATES TO:  
ALL ACTIONS

**SUPPLEMENT TO OCTOBER 6, 2014 OBJECTION AND OCTOBER 14, 2014  
SUPPLEMENTAL OBJECTION OF SEAN MOREY, ALAN FANECAL,  
BEN HAMILTON, ROBERT ROYAL, RODERICK CARTWRIGHT, JEFF ROHRER,  
AND SEAN CONSIDINE**

Sean Morey, Alan Faneca, Ben Hamilton, Robert Royal, Roderick "Rock" Cartwright, Jeff Rohrer, and Sean Considine (collectively, "Objectors") submit this motion in further support of their Objection filed on October 6, 2014, Dkt. No. 6201, and their October 14, 2014 Supplemental Objection, Dkt. No. 6232. Objectors supplement their objections to include the Supplemental Declaration of Sam Gandy, attached as Exhibit A.

Dated: November 18, 2014

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Michele D. Hangley  
HANGLEY ARONCHICK SEGAL  
PUDLIN & SCHILLER  
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/s/ Steven F. Molo

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Kaitlin R. O'Donnell  
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*Attorneys for Objectors*

**CERTIFICATE OF SERVICE**

I hereby certify that on November 18, 2014, I caused the foregoing Supplemental Objection to be filed with the United States District Court for the Eastern District of Pennsylvania via the Court's CM/ECF system, which will provide electronic notice to all counsel and parties.

/s/ Steven F. Molo

# Exhibit A



**UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF PENNSYLVANIA**

IN RE: NATIONAL FOOTBALL LEAGUE  
PLAYERS' CONCUSSION INJURY  
LITIGATION

No. 2:12-md-02323-AB  
MDL No. 2323

Kevin Turner and Shawn Wooden,  
*on behalf of themselves and  
others similarly situated,*

Civil Action No. 2:14-cv-00029-AB

Plaintiffs,

v.

National Football League and  
NFL Properties, LLC,  
successor-in-interest to  
NFL Properties, Inc.,

Defendants.

THIS DOCUMENT RELATES TO:  
ALL ACTIONS

**SUPPLEMENTAL DECLARATION OF SAM GANDY, M.D., PH.D.**

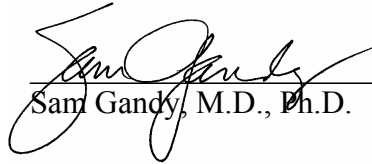
Sam Gandy, M.D., Ph.D., affirms under penalty of perjury the truth of the following facts:

1. I am the Mount Sinai Professor of Alzheimer's Disease Research, Professor of Neurology and Psychiatry, Associate Director of the Mount Sinai Alzheimer's Disease Research Center in New York City, and Chairman Emeritus of the National Medical and Scientific Advisory Council of the Alzheimer's Association.

2. On October 9, 2014, I submitted a Declaration in support of the October 6, 2014 Objection of Sean Morey, Alan Faneca, Ben Hamilton, Robert Royal, Roderick Cartwright, Jeff Rohrer, and Sean Considine. *See* Dkt. No. 6232-1.

3. I have not received any financial payments for preparing my October 9, 2014 Declaration or my November 18, 2014 Supplemental Declaration from any source, including any attorney or plaintiff in this case. Furthermore, I am not retained by, nor do I receive any payments from plaintiff attorneys in this case for the purpose of this case.

Pursuant to 28 U.S.C. § 1746, I state under penalty of perjury that the foregoing is true and correct:

  
\_\_\_\_\_  
Sam Gandy, M.D., Ph.D.

Date: 18 Nov 2014



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November 18, 2014

The Honorable Anita B. Brody  
U.S. District Judge  
7613 U.S. Courthouse  
601 Market Street  
Philadelphia, PA 19106

Re: *In re National Football League Concussion Injury Litigation*,  
No. 2:12-md-2323

Dear Judge Brody:

In this Court's November 17, 2014 Notice (Doc. No. 6428) addressing time allocation at the November 19, 2014 fairness hearing, Martin Totaro is allocated 5 minutes of argument time and Thomas Wiegand is allocated 10 minutes of argument time. At the Court's November 17, 2014 phone conference, however, the Court decided that Mr. Totaro would be allocated 10 minutes of argument time and Mr. Wiegand would be allocated 5 minutes of argument time. Consistent with that phone conference, we respectfully request that Mr. Totaro be allowed to speak for 10 minutes and Mr. Wiegand be allowed to speak for 5 minutes at the November 19 fairness hearing.

Respectfully submitted,

/s/ Steven F. Molo  
Steven F. Molo

Cc: Christopher Seeger (via ECF)  
Brad Karp (via ECF)